A STUDY ON
AZHAL KEEL VAYU
(Osteoarthritis)

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I hereby declare that this dissertation entitled **"A STUDY ON AZHAL KEEL VAYU"** is a bonafide and genuine research work carried out by me under the guidance of **Dr.A.S.POONGODI KANTHIMATHI, M.D(s).,** Professor, HOD, PG- III, Department of Sirappu Maruthuvam, Govt. Siddha Medical College, Palayamkottai and the dissertation has not formed the basis for the award of any Degree, Diploma, Fellowship or other similar title.

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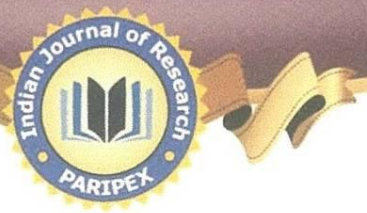

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This is to certify that the dissertation topic, An open clinical study to evaluate the efficacy of Siddha Herbal Medicine **KALINGA MATHIRAI** [Internal], **KODIVELI THYLAM**[External] and **PATTRU**[External Therapy] for the treatment of **AZHAL KEEL VAYU**[OSTEOARTHRITIS],has been approved by the screening committee.

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ABBREVIATIONS

Qty	-	Quantity
Bd	-	Twice in a day
BT	-	Before Treatment
AT	-	After Treatment
SS- QOL	-	Stroke Standard - Quality of Life
CT	-	Computerized Tomography
MRI	-	Magnetic Resonance Imaging
NCS	-	Nerve Conduction Study
EMG	-	Electro Myography
EEG	-	Electro Encephalography
PET	-	Positron Emission Tomography
OA	-	Osteoarthrities
SCM	-	Sterno Cledo Mastoid
DM	-	Diabetes Mellitus
NCD	-	Non Communicable Disease

INTRODUCTION

In the ancient period Indian Saints handle the plants and herbs for long life with better health and lived more than thousand years of age. They were called as "Siddhars" and their system of medicine was known as Siddha system.

Siddha system is one of the unique system of Indian medicine. According to Siddha Physiology man is considered as the 'microcosm' universe is considered as the "macrocosm" It shows the human body is the replica of the universe.

"அண்டத்தி லுள்ளதே பிண்டம்
பிண்டத்தி லுள்ளதே அண்டம்
அண்டமும் பிண்டமும் ஒன்றே
அறிந்து தான் பார்க்கும் போதே"

-சட்டமுனி ஞானம்

Siddha system is differ from the other system of medicine by giving obsolute physical mental and social well being of an individual by its various tools like medicine, Meditation, yoga, varmam, massage and its distinctive social and preventive medicine which is quoted by Theraiyar in pini anugavithy.

Thirumoolar quotes that..

மறுப்பது உடல்நோய் மருந்தனலாகும்
மறுப்பது உளநோய் மருந்தெனச்சாலும்
மறுப்பது இனி நோய் வாராதிருக்க
மறுப்பது சாவையும் மருநாதனாலாமே"

It can be Sammarized that the siddha system is primarily universal and is principally focused on preventive health.

On the basis of our Siddha text Ostoarthritis is inter correlated with Keelvaayu and more often keel vaayu comes under 80 types of Vadha diseases in Yugi Vaithiya Chinthamani -800 one among them is 'AZHAL KEEL VAYU"

Osteoarthritis is a chronic degenerative disorder of multi factorial etiology characterized by loss of articular cartilage, hypertrophy of bone at the margins. Subchondral sclerosis and range of bio chemical and morphological alterations of the synovial membrane and Joint capsule.

Osteoarthritis most often involves the joints that bear most of your body weight (weight bearing joints) such as the knee or hip. Osteoarthritis can also occurs in any other joints, such as lower spine or the joints in the hands an finger.

Primary osteoarthritis is mostly related to aging. It can present as localized, generalized or as erosive osteoarthritis. Secondary osteoarthritis is usually followed by another disease. It is the second most common rheumatological problem and it is the most frequent joint disease with prevalence of 25% to 45% in India. Osteoarthritis the most common form of arthritis is a major contributor to functional impairment and reduced independence in older adult.

In adults 45 years and over the most common site of peripheral joint pain lasting for the moren than one week in the past month is in the knee (19%) and the highest prevalence of knee pain is amoungst women aged 75 and over (35%). Global disability is also high amongst those reporting isolated knee pain. In adult aged 50 years and over 23% report severe pain and disability.

A variety of causes hereditary, developmental, metabolic and mechanical deficits may initiate processes leading to loss of cartileges when bone surfaces become less protected by cartilage, bone may be exposed and damaged.

As a result of decreased movement secondary to pain, regional muscles and ligaments may atropohy when the severeity increases invasive treatment may be needed.

The author have selected the KALINGA MATHERAI (Internal) to evaluate their therapeutic efficacy in the treatment of Azhal Keel Vayu (OSTEOARTHRITIS) as above said drug formulation has not undergone any clinical so far.

Internal Medicine

KALINGA MATHERAI-Gunapadam mooligai(Page No. 91).The dosage of the trail medicine is 65mg(BD) for 48 days.

External Medicine

KODIVELI THYLAM -Gunapadam mooligai(Page no.385) with the dosage -60ml (for external application)

External therapy

PATTRU –Gunapadam mooligai (pg.no 61)

The above medicine contains ingredients which have anti vadha property. Considering this they are chosen as trial medicines in this study. pattru is one of the best external therapies in Siddha system of medicine.

AIM AND OBJECTIVE

AIM:

Phase 11 clinical observation criteria based study of Azhal Keel Vayu (OSTEOARTHRITIS) and the drug choice, KALINGA MATHIRAI (internal) and KODIVELI THYLAM (external) and external therapy PATTRU

OBJECTIVE:

Primary Objective:

To evaluate the clinical efficiency of 'KALINGA MATHIRAI" (internal) and "KODIVELI THYLAM" (external) in the treatment of "AZHAL KEEL VAYU" (OSTEOARTHRITIS) and external therapy PATTRU for the reduction of pain and swelling and to improve the range of movement.

SECONDARY OBJECTIVE:

- To evaluate reduction in restriction of movements.
- To evaluate effect of pattru along with trial medicines
- To study the Siddha principles before and after treatment.
- To evaluate the safety profile of the trial medicine.
- To evaluate the pharmacological study of trial medicine.

REVIEW OF LITERATURE

SIDDHA ASPECT:

Siddhars spiritual scientist explored and explain the reality of nature and its relationship to man by their yogic awareness.

According to Siddha philosphy man is nothing but a miniature world containing the five basic elements.

The Earth give shape to the body and release its energy, Bones, Muscles nerves represent it in the body.

Panchaboothas namely earth, water, fire, air and either which correspondents to the five sense of the human body and they.

The water makes the earth supply and helps in the transmission of energy, Serum, Lymph Saliva etc, represent it in the body.

The fire makes the form of the body steady and gives vigour and stimulation, Digestion and circulation represent it in the body.

The air ignites the fire and works as a life carrier and is the support of all contact and exchange. Respiratory and nervous system represent it in the body. The either is the creater of life itself in the body.

A harmonious combination and function of these five elements in the body produce a healthy life. Man has gross physical body and subtle physical body. The life force which is different from material energy derived from food, pervades the gross physical through the subtle physical.

Thiruvalluvar says

"மிகினும் குறையினும் நோய் செய்யும் நூலோர்
வளிமுதலா எண்ணிய மூன்று"

The food we eat has six tastes namely Sweet (இனிபபு). Sour (புளிப்பு), Salt (உப்பு), Bitler (கைப்பு), Purngent (கார்ப்பு), Astringent (துவர்ப்பு)

Each of it is a Mixture of two basic elements

கைப்பு	**- மண் + நீர்**
புளிப்பு	**- மண் + தீ**
உப்பு	**- நீர் + தீ**
கைப்பு	**- காற்று + ஆகாயம்**
துவர்ப்பு	**- மண் + ஆகாயம்**

Three humours theory:

Pachaboothas are the foundations for Thridosha (Vatham, Pitham Kabham) which are described in Siddha Medicine is a golden line continuous in phyciology, pathology and treatment. The three humours vatham, pitham and kapham whose balance is essential for maintenance of good health.

"வாதமாய் படைத்து பித்த வன்னியாய் காத்து சேத்ம
கீதமாய் துடைத்து"

- தேரையர் மருத்துவ பாரதம்

Vaayu constitute vatham

Theyu constitute pitham

Appu constitute Kabham

Any alterations in the level of Thridhosha affects the normal functions of the body. This is obvious from the verses.

"மிகினும் குறையினும் நோய்செய்யும் நூலோர்
வளிமுதலா வெண்ணிய மூன்று"

-திருக்குறள் (மருந்து)

The normal order of Vatha, Pitha, Kaba, is in proportion of 1: ½ : ¼ respectively.

வழங்கிய வாதம் மாத்திரை யொன்றாரில்
தழங்கிய பித்தம் தண்ணிரைவாகி
அழங்குங் கபந்தானடங்கியே காலோடில்
பரங்கிய சீவர்க்கு பிசகொன்றுமில்லையே

Any changes in these proportions will be responsible for disease but the maintenance of their normal proportion gives vitality to the organism and assures the preservation of health and longevity of life.

Thannilai Valarchi (Accumulation and excitation)

The stage where the humour accumulates in a particular part as stagnant is called Thannilai Valarchi.

When the stagnant humour accumulated and permeated a structure there is an excitement from eversion towards similar and attraction towards contraries. This is known as 'prakobam'

Piranilai Valarchi (Spreading)

This is the stage where the excited humour extends by viyana to another part. The derangement of kutram becomes located in part of the body. And being to cause disease of Joints, blood, stomach, bladder and soon.

I. Vatham

Own qualities of Vatham (6)

Dry (**வரட்சி**)

Cold(**குளிர்ச்சி**)

Subtle(**அணுத்துவம்**)

Rough(**கடினம்**)

Unstable(**அசைதல்**)

Light(**இலகு**)

opposite qualities of vatham (6)

Unctuous - (பசுமை)

Hot (அக்கினி)

Solid (கெட்டி)

Soft (மிருது)

Stable (ஸ்திரம்)

Heavy (பளுவு)

Location of Vatham:

Vatham is located in the hip, below the abdomen, Moolatharam and sexual organs it is also said that vatha is settled in various places including bone, joints, nerves, vessels, hairfollicles, muscles, sperm, urine and stools.

Function of Vatham:

The function of vatham is stimulates the body and soul, voiding of excreta refreshness and proper harmony of the seven thathu.

Effect of vitiated vatha:

Vayu-pain, exquisite pain, extreme dryness, palpitation, dislocation of the joints dysfunction of the sexual organs, constipation, dysuria, thirst, pain in the long bone unable to flexion and extension of the limal, dark complexion and emaciation are the main ill effects of the vitiated vatha.

11. Pitham:

The term pitham denotes gastric juice, bile, energy, heat and anger at

own qualities of pitham (6)

Hot (அக்கினி)

Acid(புளிப்பு)

Mobile (ஊடுந்தன்மை)

Liquid(சலரூபம்)

Acute (குரூரம்)

Pungent (காரம்)

Opposite qualities of pitham (6)

Cold(குளிர்ச்சி)

Sweet(இனிப்பு)

Immobile(நிலைத்திருத்தல்)

Solid(கெட்டி)

Mild or harmless(சாந்தம்)

Bitter(கசப்பு)

Location of Pitha:

Head, Heart, Bladder, Abdomen, Umbilicus, Stomach, Saliva, Sweat, Blood, Eyes and skin are the sites of pitham.

Effects of vitiated pitham:

Excessive heat in the body, improper digestion, excessive sweat, gridiness syncope and immortal behaviours are some of the ill effects of vitiated pitham.

III. Kabam:

Own qualities of Kabam (6)

Cold (குளிர்ச்சி)

Heavy(பளுவு)

Immobile (அசைவின்மை)

Sweet (இனிப்பு)

Soft (மிருது)

Unctuous (ஈரம்)

viscid (வழவழப்பு)

Opposite qualities of kabam (6)

Hot (உட்டிணம்)

Light (இலகு)

Mobile(அசைதல்)

Pungent (காரம்)

Rough (கடினம்)

Dry(வறட்சி)

Sandy (கரகரப்பு)

Location of Kabam

The Kabam is located in the tongue, chest, blood, bone marrow, bones, nerves, brain, large intestine, eyes and joint.

Functions of Kabam:

The important functions of kabam are maintaining the viscosity and proper functioning of the joints.

Effects of vitiated kabam:

Pain in the long bones, dysfunction of the joints, improper digestion, excessive sleep and inhibition of understanding capacity.

Relation between suvai, panchapootham and Thiridhosam.

S.No.	Suvai	Panchapootham	Thiridhosam
1	Inippu	Man + Neer	Kabam ↑ Vatham ↓ (-) Pitham ↓ (+)
2	Pulippu	Man + Thee	Kabam ↑ Pitham↑ Vatham ↑ (-)
3	Uppu	Neer + Thee	Kabam ↑ Pitham ↑ Vatham ↑(-)
4	Kaippu	Vayu + Aagayam	Vatham ↑ Kabam ↓ (-) Pitham ↑ (-)
5	Kaarppu	Vayu + Thee	Vatham ↑ Pitham ↑ (-) Vatham ↓ (-)
6	Thuvarppu	Man + Vayu	Vatham ↑ Kabam ↓ Pitham ↑ (-)

↑ - Vetrunilai Valarchi

↓ - Thannilai Valarchi

(-) - Thannilai Adaithal

KEEL VAYU

In Siddha literature Azhal Keel Vayu comes under the topic of Vatha disease. Keel Vayu is the general term that include all kind of Joint diseases. (Locomotor system)

Azhal Keel Vayu = Azhal + Keel + Vayu

Azhal - Pitham

Keel - Joint

Vayu - Vatham

In 'Yugi Vaithiya Sinthamani Vatha diseases are classified into 80 types.

In Theryar Vagadam Vatham into 81 types Keel Vayu comes under the classification of 81 types of Vatham.

TV Sambasivam pillai Dictionary "Keel Vayu" means painful inflamation with Swelling affecting the muscle and Joints of the human body.

In Agasthiyar Gunavagasdam 'Keel Vayu" comes under the 80 types of Vatha diseases.

'தானாக கீல்வாத ரோகம் பேரை
நோய் தனக்கு பாகியாய் வாதரோக மென்பார்
நுட்பமுள்ள வாதரோக மெண்பதுந் தான்
ஆய்ந்தெடுத்து இதற்குள்ளே ஆக்கம் பாரு"

-அகத்தியர் குணவாகடம்

Other Names:

According to Siddha Maruthuvam textbook Keel Vaayu mentioned as Santhu Vali, Muttu Vali, Magha Soolai, Mudakku Vayu, Ama Vatham.

- Vitiated vatham, produces disease in Keel (Joints) called as Keel Vayu"
- Pain in muthu (joint) called - Muttuvali
- Disease which followed by Megha noi called as - "Megha Soolai"
- Inability to use Joints properly called as -"Mudakku Vayu"
- Pain present in all joints called as -"Santhuvali"
- In proper digestion of food followed by increased Kapham produces Vadha disease called as -Amavatham"

In Yakobu Vidhya sinthamani it is mentioned a 'Mudakku Vatha Soolai" In Thanvanthri Vaidya Kaviyam it is said as 'Mudakku Vaya" Iyal (Definition)

‘வரியுமைந் தன்னிலை கெட்டு
வலியுடன் வீக்கச் சரமும் காய்ந்து
மூட்டுகள் தோறும் முடுக்கியே நொந்து
மூட்டுகள் தன்னில் நீரும் சுரந்து
தாங்கொணா வலியுமா நொந்திடும்மே”
-சபாபதி கையேடு

Keel Vayu is a Vatha disease characterized by pain and swelling of the joints, stiffness of the muscles and joints with tenderness frequently associated with fever, anorexia and insomnia. It may be accompanied by emaciation, anaemia and restriction of joint movements and in some cases even immobility may occur.

According to agasthiar guna vagadam “Keel Vayu” comes under the 80 types Vatha disease.

‘வலியு மையுந் தன்னிலை கெட்டு
வலியுடன் வீக்கச் சுரமும் காய்ந்து
முட்டுக டோறும் முடுக்கியே நொந்து
முட்டுக டன்னின் நீரும் சுரந்து
தாங்கொணா வலியுடன் நொந்திடு மம்மே”
-சபாபதி கையேடு

‘தானாக கீல்வாத ரோகம் பேரை
நோய் தனக்கு பாகியாய் வாதரோக மெண்பார்
நுட்பமுள்ள வாதரோக மென்பதுந் தான்
ஆய்ந்தெடுத்து இதற்குள்ளே அடக்கம் பாரு”
-அகத்தியர் குணவாகடம்

Noi Enn (Classification)

Keel Vayu is classified into 10 types according to Siddha Maruthuvam text book.

- Vali Keel Vayu
- Azhal Keel Vayu
- Iya Keel Vayu
- Vali azhal Keel vayu
- Vali iyal keel vayu
- Azhal Vali Keel vayu
- Azhal iyal Keel vayu

- Iya Voli Keel Vayu
- Iya ahzla keel vayu
- Mukkutra Keel vayu

In theraiyar vagadam among the 81 vatha disease following are joint diseases.

- Sooriya vatham
- Seetha vatham
- Jozhi vatham
- Kuthi vatham
- Santhu vatham
- Vasi vatham
- Kendai vatham
- Sathi vatham
- Thombai vatham
- Kotai vatham

In the text book Athma rakshamirtham, the following are described as Joint disease.

- Muzhanthai vatham
- Mudakku vatham
- Kendaikal vatham
- Santhu vatham
- Thoal vatham
- Muzhi vatham

Noi Varum Vazhi (Aetiology)

“காணவே மிகவுண்டாலுங் கருலுபட்டினி விட்டாலும்
மான்னையார் கண் மேகமறக்கினு மிகுந்தியாலும்
ஆணவ மலங்கடம்மை யங்ஙனே விடாததாலும்
வானுதன் மடநல் லானே வாதங்கோ பிக்குங்கானே”

-பரராச சேகரம்

அதிக அளவு உண்ணல், பட்டினி கிடத்தல்,
ஆணவம் அதிகரித்தல் ஆகியவற்றாலும்
‘பாரினிற் பயப்பட்டாலும் பலகுடன் கோபித்தாலும்
காரெனக் கருதியோடிக் கமுமரத் துரத்தினாலும்
ஏர்பெறு தனது நெஞ்சில் மிகத் துக்கமடைந்திட்டாலும்
பாரிய காற்றினாலும் படரினும் வாதங்காணும்

-பரராச சேகரம்

பயம், எல்லோரிடமும் கோபம் கொள்ளல், மிகுதியாக துக்கம் தினமும் உடலின்மேல் காற்றுபடல் போன்றவற்றாலும்

‘காலங்கண் மாறியுண்ணுங் காரியத் தாலுந் தண்ணீர்
சாலவே யருந்தினாலுந் சந்திலுட் காந்தாலும்
கோலமாம் புளிப்பு நெய்யை வருந்தினாலும்
வால்வார் முலை நல்லாளே வாத முற்பணிக்குங்காணே”

-பரராச சேகரம்

‘கூறுமெனாறு மூன்றுடன் குலவு நாலைந் தேழிலும்
குற்றமாம் நலத்தினும் கொரம் பன்னிரண்டிலும்
சேரவே புதன்தாறுமோ சிரியமேனை நின்ரிடில்
செப்பொணாத தீமையோடு செய்யும் பச்சந்தாறும்
நெடுந்துக்க மிக்கவாம் நடக்கற்தாது தொழில்தாம
நிததையாகு கீலபிடிப்பு நீடு மெய்யில் தோன்றுமாம்
காரியங்கள் சேதமாய் கால்வயது குறையுமாம்
கண்டுணர்ந்து யகணித வல்லோன் கருத்துடன் செப்பினமே”

-மணிமந்திர வைத்திய சேகரம்”

என்னவே வாதம் தானென்பதாகும்
இகத்திலே மனிதர்களுக்கு செய்யுவாற
பின்னவே பொன்தனையே கோரங்செய்து
பெரியோர்கள் பிராமணரைத் தூகூடினித்தும்
வன்தேவர் சொத்திச் சோரஞ் செய்து
மாதா பிதா குருவை மறந்த பேர்க்கும்
கன்னவே வேகத்தை நிந்தை செய்தல்
காயத்தில் கலந்திடுமே வாதந்தானே”

-யூகி சிந்தாமணி பாடல் 243

‘வளியுமைந் தன்னிலை கெட்டு
வலியுடன் வீக்கச் சுரமும் காய்ந்து
மூட்டுகள் தோறும் முடுக்கியே நொந்து
மூட்டுகள் தன்னில் நீரும் சுரந்து
தாங்கொணா வலியுமா நொந்திடுமே”

Vatha disease is caused due to the following precipitating factors:

- Increased intake of tubers
- wandering of chill weather
- Drenching in rain

- Living in hilly region
- Excessive sexual inter course
- Heredity
- Excessive intake of bitter, astringent, acrid taste food, intake of varagu, thinai and altered sleep pattern also contribute to vatha disease.

External Cause:

Environmental factors:

வாதவர்த் தன காலமேகோ வென்கில்
மருவுகின்ற ஆனி கற்கட மாதம்
ஆதனைப் பசியோடு காத்திகை தன்னில்
அட்ருமே மற்ற மாதங்கள் தன்னில்
போகவே சமிக்கின்ற காலமாகும்

-யூகி சிந்தாமணி

The vatha disease will be precipitated in the months from Aani to Karthigai (June to December)

‘பதுமத்தைப் பூக்க வைக்கும் பானுமிகக் காயும்
முதுவேனி லிற்பு விந்நீர் - கதுமென
வற்றும் கபம்ஃகும் வாயுமிகும் வாழ் மாந்தர்க்
குற்ற நபிக் கேதிதென் றோது”

-சித்த மருத்துவாங்க சுருக்கம்

In Muthuvenil Kaalam, the increased Solar radiation increase the evaporation of water content in the world, on the same time this similar action on the body produces increases absorption of muucous for digestion and develop the vitality of vatha disease. So this disease occurs predominantly in muthuvenil kaalam.

Diet:

“வளிதரு காய் கிழங்கு
வரைவிலா தமில்ல கோழை
முளிதயிர் போன்மிகுக்கு
முறையிலா வுண்டி கோடல்
குளிர்தரு வளியிற் றேகங்
குளிப்புற வுலவல் பெண்டிர்களித்தரு முயக்கம் பெற்றோர்
கடிசெயல் கருவியாமல்”

Diet and health which gives rise to vatha dhosa (i.e.) excessive intake of Potato like roots and banana, excessive intake of cold substances like curd, exposure to cold, staying in hill station which increase kabam causes this disease.

Further this disease is followed by Megha noi and may be hereditary physical factors.

‘பகரவே வாதமது பேரித்தப்போ
பண்பாக பெண்போகம் அனுதான் செய்யில்
தகாவே வெகுதூர வழி நடத்தில்
நனிரான காற்றுமே பணிமேல் பட்டால்
நிகரவே காய்கள் கனிகிழங்கு தன்னை
மிரு வருந்தி மீறியே தயிர்தான் கொண்டால்
முகரவே முதுகெலும்பை முறுக்கி நொந்து
முழங்காலும் கணுக்காலும் கடுப்புண்டாகும்
-யூகி சிந்தாமணி

Indulging in the sexual act during vitlation of Vatha, walking for a long distance, exposing to dampress and cold, harmful combination like taking excessive curd after eating fruits, vegetables and tubers causes toxic factors which affects bone and muscles.

According to Pararasa Sekaram.

தொழில் பெறுகைப்புக் கார்த்தல் துவர்த்தல் விஞ்சுனுஞ்சோறும்
பழையதும் வரகு மற்றைப் பைந்தினையருந்தினாலும்
எழில் பெறப் பகலுறங்கி இரவினிலுறங்காதலாலும்
மழை நிகர் முழலினாலே வாதங்கே பிக்குங்கானே

Excessive intake of bitter, astringenet, pungent taste diet, day sleeping, wakening during night intake of old looked food items.

Internal causes:

Kanma as a cause:

In Siddha system, many diseases are said to be precipitated by Kanma, which means the deeds, good or bad committed by an individual in his previous and present births, Vatha diseases, according to agasthiyar Kanma kandam - 300 may also precipitated by Kanma.

நூலன்ற வாதம் வந்த வனகதானேது
துண்மையாய்க் கன்மத்த்தின் வனகையைக் கேளு
காலிலே தோன்றியது கடுப்பதேது
கைகாலில் முடக்கியது வீக்கமேது

கோலிலே படுகின்ற விருட்சமான
குழந்தை மரந்தனை வெட்டல் மேல் தோல் சீவல்
நூலிலே சீவ ஐந்து கால் முறித்தல்
நல்ல கொம்பு தழைமுறித்தல் நவித்தல் தானே

-அகத்தியார் கன்ம கண்டம்.

It attribute the following psychological factors such as removing the bark of living trees, cutting the trees in the living branches and removing leaves.

Due to karmic laws

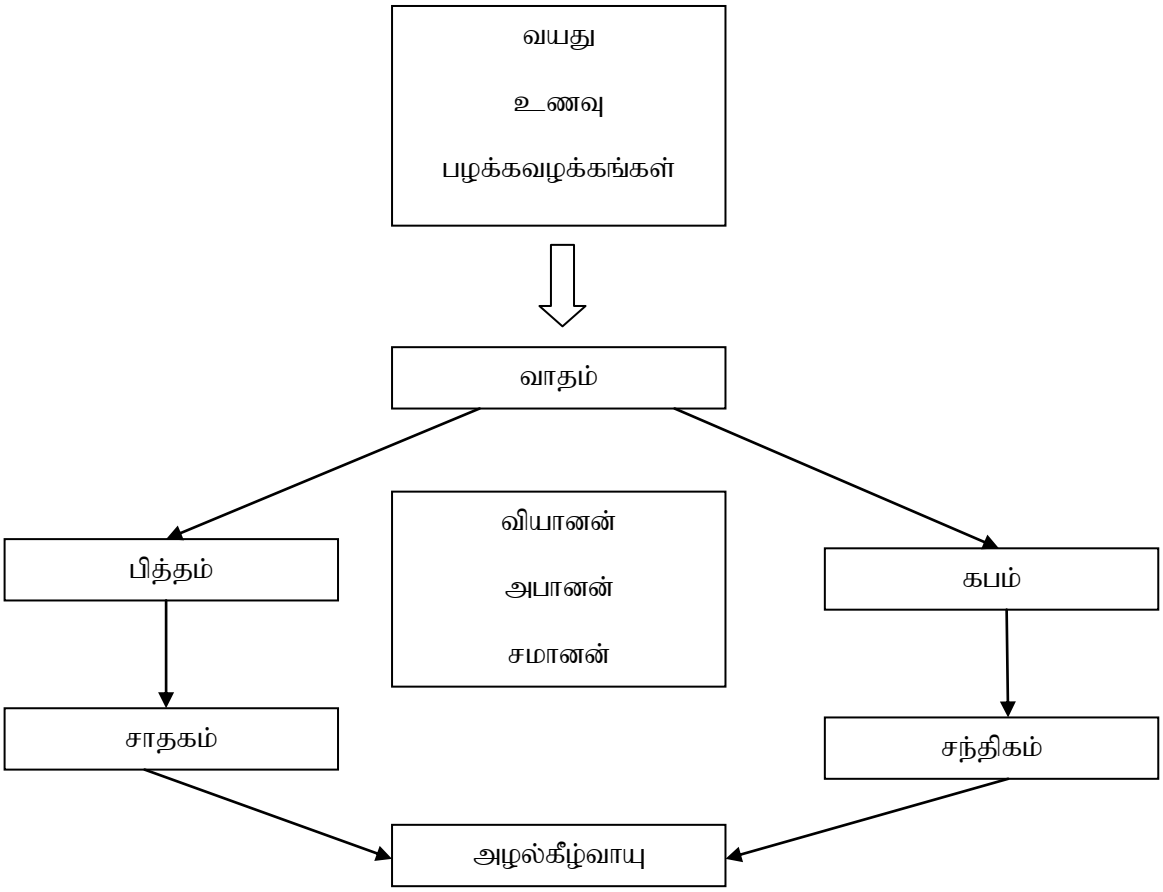
அந்தணர் கற்பு மாதர் அருளிய சாயத்தாலும்
முந்திய வினையாலும் முகிர்கர்ப்ப மேகத்தாலும்
சிந்தையிற் கொடுமையாலும் சிவகுரு நிந்தையாலுந்
தொந்தமாம் விவாதியாலும் தோன்றிடும் குலைதானே

-அகத்தியர்

‘நூலென்ற வாதம் வந்து வனகதானேது
தன்மையாய்த் தன்மத்தின் வகையைக் கேளு
காலிலே தோன்றியது கடுப்பதேது
கைகாலில் முடக்கியது வீக்கமேது
கோலிலே படுகின்ற வருட்சமான
நல்லகொம்பு தழைமுறித்தல் நலித்தல் தானே

-அகத்தியர் கன்மகாண்டம்

நோய் வரும் வழி


வயது
உணவு
பழக்கவழக்கங்கள்
வாதம்
வியானன்
அபானன்
சமானன்
பித்தம்
கபம்
சாதகம்
சந்திகம்
அழல்கீழ்வாயு

Clinical features

‘பித்தக்கீல் வாய்வு தன்னாற்
பிறங்குசீன் முட்டு வீங்கிச்
சித்தர்செய் மருந்து வந்துஞ்
சிர்படாத் தன்மைத் தாகித்
தத்துறு காய்ச்சல் கண்டு

சாலவே தனைதான் தந்தே
மெத்தறு சிகிச்சை தன்னால்
மென்மேல் நீங்கு மப்பா”

-சபாபதி கையேடு

- Swelling of the Joint
- Fever
- Restricted movement
- Swelling of the Joint will increased day by day increased pitham act as synocid theid between the joint space which dries it. It makes sound like ‘kaluk, kaluk’ when the movement of the joint.

Sometimes it may **பிணியறி முறைமை (Diagnosis in Siddha):**

பிணியறி முறைமை என்பது உடலைப் பிணித்தலால் நோயைத் தெரிந்து கொள்ளுகின்ற ஒழுக்கம் எனப்படும்.

விதியும் ஒழுக்கமும் இது

- பொறியாற்றேர்தல்
- புலனாலறிதல்
- வினாதல்

பொறியால் அறிதல் (Inspection):

“Poriyal Arithal” means examining the “Pori” of the patient by the physician for proper diagnosis. Pori is considered as the “Five sense organs” namely,

1) மெய் (Skin)
2) நாக்கு (Tongue)
3) கண் (Eye)
4) மூக்கு (Nose)
5) செவி (Ear)

ஞானேந்திரியங்களின் ஆய்வு:

செவி	ஒலியை அறிய செய்தல்	இயல்பு
மெய்	உடலில் ஊற்றை அறிதல்	முழங்கால் மூட்டுகளில் வீக்கம், வலி
கண்	ஒளியை அறிய செய்தல்	இயல்பு
நாக்கு	சுவையை அறிய செய்தல்	இயல்பு
மூக்கு	வாசனை நுகர செய்தல்	இயல்பு

கன்மேந்திரியங்களின் ஆய்வு:-

வாய்	வசனிக்க செய்யும்	இயல்பு
ஐக	இடுதலும், ஏற்றலும் செய்யும்	இயல்பு
கால்	நடக்கச் செய்யும்	முழங்கால் மூட்டுகளில் வலி, நடக்க சிரமம்
எருவாய்	மலத்தை கழிக்கும்	மலச்சிக்கல்
கருவாய்	கரு, சுக்கிலத்தைக் கழிக்கும்	இயல்பு

Pulanal arithal (Palpation):

Pulan are five senses. They are,

1) நாற்றம்
2) சுவை
3) ஒளி
4) ஊறு
5) ஓசை

"Pulanal arithal" means examining the "Pulan" of the patient by the Physician to diagnose a disease.

வினாதல் (Interrogation):

வினா என்பது கேட்டறிதல், பொறியாற்றேர்தல், புலனாலறிதல், வினாதல் என்பது பிணியுற்றோனிடத்தும், பிணி தீர்ப்போனிடத்தும் உள்ளபொறி, புலன்கள் பிணிகளைத் தெளிவாயுணர்த்துமாகையால் மருத்துவன் தன்னை நோக்கி வந்த பிணியுற்றவனைப் பற்றி அறிய பிணியாளனுடைய பொறி, புலன் வழியாய் உணர்வதைக் கேட்டும் அவன் ஒருக்கால் எக்காரணத்தினாலோ தான் கேட்பதைச் சொல்லுவதற்கியலாதவனாயிருப்பின் அவன் சுற்றத்தாரைக் கொண்டு அறியக்கூடியவரை அறிந்தும், பிணியைக் கணித்தலைப் பற்றியே குறிக்கும்.

Vinaathal is gathering information regarding the history of disease, its clinical features etc., from the patient or his/her close relatives usually when the patient is not in a position to speak or in the case of a child.

எண் வகை தேர்வு:

"நோய் நாடி நோய் முதல்நாடி அதுதணிக்கும்

வாய்நாடி வாய்ப்பச் செயல்" - திருக்குறள்

1. நாடி:

"வாதத்தில் சேத்தும மாகில் வலியோடு வீக்க முண்டாம்"

அகத்தியர் நாடி

"அறிந்துபார் வாதமே தனித்தானால்

சரிந்திடவே கால்முடக்கும்"

அகத்தியர் ரத்தின சுருக்கம்

"காணப்பா வாத மீறில் கால்கைகள் பொருந்தி நோகும்"

வாதம், வாதபித்தம், பித்த வாதம் - காவியநாடி

2.ஸ்பரிசம்:

பாதிக்கப்பட்டுள்ள மூட்டு பகுதியில் மித வெப்பமாகவோ, இயல்பாகவோ காணப்படும்.

3. நா:

இயல்பு, வாதநோயில் நா தடித்து இருக்கும்.

4. நிறம்:

இயல்பு, மாநிறம்

5. மொழி:

சமஒலி

6. விழி:

இயல்பு, வாத நோயில் விழி கறுத்து இமை தடித்திருக்கும்

7. மலம்:

பாதிப்பு (மலச்சிக்கல் காணப்படும்)

8. மூத்திரம்:

மூத்திரம் கடுப்புடன் கொஞ்சமாக நுரையுடன் இறங்கும்

Neikkuri:

"அருந்து மாறிதரமும் அவிரோதமதாய்
அ.ˑ.கல் அலர்தல் அகாலவூன் தவவிர்ந்தழற்
குற்றள வருந்தி உறங்கி வைகறை
ஆடிக் கலசத் தாவியே காதுபெய்
தொரு முகூர்த்தக் கலைக்குட் படுநீரின்
நிறக்குறி நெய்க்குறி நிருமித்தல் கடனே"

- சித்த மருத்துவாங்க சுருக்கம்.

என்பதனால் உண்ணுகின்ற அறுசுவைப் பொருள்களும் ஒன்றுக்கொன்று வேற்றுமையடையாமலும் பசிக்குத் தக்கப்படி குறைத்தல் அதிகரித்தல், காலந்தப்புதல் முதலிய குற்றங்களுண்டாகாவண்ணம் புசித்து உறங்கி விடியற்காலத்தில் படிக பாத்திரத்தில் நீரை ஆவிபோகாதபடி பெய்த நாழிகைக்குள் அதன் நிறக் குறியையும், அதில் எண்ணெய்விட்டுப் பார்த்து காணப்படுகின்ற குறியையும் கவனித்து, பிணிகளின் தீரும் தீராத குறிகளை மெய்ப்பித்தல் முறையாம்.

எண்ணெய் விட்டுப் பார்க்கும் நீரின் விதி:

நிறக்குறிக் குரைத்த நிருமாண நீரிற்
சிறக்க வெண்ணெய்யோர் சிறுதுளி நடுவிடுத்
தென்றுறத் திறந்தொலி ஏகாதமைத்தி
னின்றதிவலை போம் நெறிவிழியறிவும்
சென்றது புகலுஞ் செய்தியை யுணரே

நோய்நாடல் நோய் முதல் நாடல் பிரிவு-1

The collected specimen was examined by the subsequent method. The collected urine specimen is held in reserve in a glass dish or china clay container and experiential under direct sunlight without shaking the vessel. Then drip one drop of gingelly oil and observe the spreading pattern and concludes as follows,

"அரவென நீண்டின.்.தே வாதம்
ஆழிபோற் பரவின் அ.்.தே பித்தம்
முத்தொத்து நிற்கின் மொழிவ தென் கபமே
அரவில் ஆழியும் ஆழியில் அரவும்
அரவின் முத்தும் ஆழியில் முத்தும்"

- சித்த மருத்துவ நோய் நாடல் நோய் முதனாடல் திரட்டு

b. Neerkkuri:

"வந்த நீர்க்கரி யெடை மணம் நுரை எஞ்சலென்
றைந்திய லுளவை யறைகுது முறையே"

- சித்த மருத்துவாங்க சுருக்கம்

Urine is examined for the following neerkkuri:

- Niram - Colour
- Edai - Specific Gravity
- Manam - Smell
- Nurai - Frothy nature
- Enjal - Quantity of urine voided

In Azhal keel vaayu straw or hay coloured urine was noticed in Neerkkuri

திணை (Geographyical distribution):

குறிஞ்சி : மயலயம் மலை சார்ந்த பகுதியும்

முல்லை : காடும் காடு சார்ந்த பகுதியும்.

"முல்லை நிலத்தமைய முந்நிரை மேவினுமல்.....
வாதமொழி யாததனுண் மன்னு மவைவழிநோய்ப்
பேதமொழி யாதறைப் பின்பு"

- பதார்த்த குண சிந்தாமணி

மருதம் : வயலும் வயல் சார்ந்த பகுதியும்

நெய்தல் : கடலும் கடல் சார்ந்த பகுதியும்

"நெய்தனில மேலுப்பை நீங்கா துறினுமது .....
மருங்குடலை மிக்காக்கும் : வல்லுறுப்பை வீக்கும்,
கருங்குடலைக் கீழிறக்குங் காண்"

- பதார்த்த குண சிந்தாமணி

பாலை : மணலும் மணல் சார்ந்த பகுதியும்.

முல்லை மற்றும் நெய்தல் நிலங்களில் வாத நோய்கள் பெருமளவில் ஏற்படும்.

பாலை நிலம் வாதம், பித்தம், கபம் இவற்றால், விளைகின்ற பிணிகட்கு இருப்பிடம் ஆகும்.

PARUVA KAALAM (Seasonal Variations):

Siddhars have classified a year into six seasons each constituting two month

Kaalam	Kutram	Suvai
Kaar Kaalam Avani and Purattasi (Aug 16 - Oct 15)	Vatham (Vetrunilai Valarchi) Pitham (Thanilai Valarchi)	Enippu Pulipu Uppu
Koothir Kaalam Iypassi and Karthigai (Oct 16 - Dec 15)	Vatham (-) (Thanilai adaithal) Pitham (vetrunillai Valarchi)	Enippu Kaippu Thuvaruppu
Munpani Kaalam (Margazhi and thai) (Dec 16 - Feb 15)	Pitham (-) Thanilai adaithal	Enippu Pulippu Uppu
Pinpani Kaalam (Massi and Panguni) (Feb 16 - Apr 15)	Kapham (Thanilai valarchi)	Enippu Pulippu Thuvaruppu

ஏழு உடல் தாதுக்களின் ஆய்வு:

வ.எண்.	உடல் தாதுக்கள்	தொழில்	அழல்கீல் வாயுவில் காணப்படுவது
1	சாரம்	உடலையும் மனதையும் ஊக்கமுறச் செய்வது	பாதிப்பு (உடல்சோர்வு, மனசோர்வு)
2	செந்நீர்	அறிவு, வன்மை, ஒளி, செருக்கு இவைகளை நிலைக்க செய்வது	இயல்பு
3	ஊண்	உடலின் உருவத்தை அமைத்தலும், என்பை வளர்த்தலும்	பாதிப்பு (வீக்கம் காணப்படல், ஊண் குறைதல்)
4	கொழுப்பு	உறுப்புகள் இயங்க அவற்றிற்கு நெய்ப்புரை ஊட்டுவது	பாதிப்பு (கீல்களில் நெய்ப்பு பசை குறைதல்)
5	எலும்பு	உடல் அசைவிற்கு அடிப்படையாயிருத்தல்	பாதிப்பு (என்புபலம் குறைதல்)
6	மூளை	என்புக்குள் நிறைந்து வன்மையும், மென்மையும் தருவது	பாதிப்பு
7	வெண்ணீர்	கரு தோற்றத்திற்கு முதலாய் நிற்பது	இயல்பு

In Azhal Keel Vaayu,

Saaram, Kozhuppu, Oon and Enbu thathukkal are chiefly affected.

1. சாரம் : உடல்சோர்வு, மனசோர்வு (Tiredness and pain in joints).
2. கொழுப்பு : கீல்களில் நெய்ப்பு பசை குறைதல் (Morning stiffness occurs in affected knee joint)
3. எலும்பு : என்புபலம் குறைதல் (Pain occurring in affected knee joints, crepitations Present)
4. ஊண் : வீக்கம் காணப்படல், ஊண் குறைதல் (Muscle wasting present)

முக்குற்ற வேறுபாடு:

வளிமிகு வபான வியான
வாயுக்க ளதிக ரிக்கும்
இளமிக மலநீர்க் கட்டும்
இயம்பிய வபானன் செய்யும்

சபாபதி கையேடு

வாதம்	தொழில்	அழல்கீல் வாயுவில் பாதிக்கப்பட்ட குற்றம்
பிராணன்	மூச்சு வாங்கல் விடுதல் செய்யும்	இயல்பு
அபானன்	கீழ்நோக்கி மலத்தைத் தள்ளும்	பாதிப்பு (மலக்கட்டு)
வியானன்	உறுப்புகளை நீட்டி மடக்க செய்யும்	பாதிப்பு (கால்களை நீட்டி மடக்குவதில் சிரமம்)
உதானன்	உணவின் சாரத்தை உடலில் நிறுத்தும்	இயல்பு
சமானன்	மற்ற வாயுக்களை சரிப்படுத்தும்	பாதிப்பு (மற்ற வாயுக்கள் பாதிப்பு)
நாகன்	எல்லா கலையும் கற்கும் படி செய்தல்	இயல்பு
கூர்மன்	கண்களை திறக்கவும் மூடவும் செய்யும்	இயல்பு
கிருகரன்	நாவிற் கசிவையும் நாசியிற் கசிவையும் உண்டாக்கும்	இயல்பு
தேவதத்தன்	சோம்பல், உடல் முரித்தல் உண்டாகும்	இயல்பு
தனஞ்செயன்	இறந்த பின் மூன்றாம் நாள் தலைவெடித்து வெளியேறும்	-

நோய்கணிப்பு விவாதம்

வளிகீல் வாயு:

வலிக்குத்தல் வீக்கங்காணும் வாய்த்தொண்டை வறட்சி காய்ச்சல்
தலைவலி மார்துடிப்புத் தாங்கொணா வலி வீக்கந்தான்
நிலவு காங்கணுக் குறங்கு நீடு தோள் முழங்கைக் காற்காம்
மலக் குடற்கட்டு வேர்வை வாதக்கீல் வாயு விதாமே

- சபாபதி கையேடு

தாங்க முடியாத வலி, கால், விரல், முழங்கால் மூட்டு, இடுப்பு மூட்டு, முழங்கை மூட்டு, தோள் மூட்டு ஆகிய மூட்டு ஆகிய மூட்டுகளில் வீக்கம், வாய் வறட்சி, சுரம், தலைவலி, படபடப்பு, மலச்சிக்கல், வியர்த்தல் ஆகிய குறிகுணங்களையுடையதாகும்.

ஐயக்கீல் வாயு:

"கருதருங் கபக்கில் வாயு கண்டிடின் உடலிளைக்கும்
உருமெலிவாக்குங் கொள்ளும் உண்டியைச் சுருக்கு மினபந்
தருதுயில் நீங்கு முட்டிற் றாங்கொணா வலுவையாக்கும்
இருமலே விக்கல் வாந்தி, சோபை பாண்டெழுப்பும் பாரே"

- சபாபதி கையேடு

மூட்டுகளில் தாங்க முடியாத வலி, உடல் மெலிவு, பசியின்மை, விக்கல், வாந்தி, பாண்டு ஆகிய குறிகுணங்கள் காட்டும் நோயாகும்.

வளி ஐயகீல் வாயு:

"அவையம் வாதக் கபக்கீல் வாயுவான் வலி மிகுந்தே
உயங்கு நீர் கோத்து கீல்கள் ஒரியின் தலைபோற் காணும்
நயங்கொள்ள முடக்கல் நீட்டல் நண்ணிடாமெய்யுங்காயும்,
மயக்குறு முறக்மின்னாம் மன்னிய நெரிக்கட்டாமே"

- சபாபதி கையேடு

பித்தம்

வ.எண்	பித்தம்	தொழில்	அழல்கீல் வாயுவில் பாதிக்கப்பட்ட குற்றம்
1	அனற்பித்தம்	உண்ட உணவு பொருளை செரிக்கும்படி செய்யும்	இயல்பு
2	இரஞ்சகம்	செந்நீரை மிகுதிபடுத்தும்	இயல்பு
3	சாதக பித்தம்	விருப்பமான தொழிலை செய்து முடிக்கும்	பாதிப்பு (தொழில் செய்ய சிரமம்)
4	ஆலோசக பித்தம்	கண்களுக்கு பொருளை தெரிவிக்கும்	இயல்பு
5	பிராசக பித்தம்	தோலுக்கு ஒலியை கொடுக்கும்	இயல்பு

கபம்

வ.எண்	கபம்	தொழில்	அழல்கீல் வாயுவில் பாதிக்கப்பட்ட குற்றம்
1	அவலம்பகம்	மற்ற நான்கு ஐயங்களுக்கும் பற்று கோடாயிருக்கும்	பாதிப்பு
2	கிலேதகம்	செரித்தல்	இயல்பு
3	போதகம்	சுவையை அதிகரிக்கும்	இயல்பு
4	தற்பகம்	கண்களுக்கு குளிர்ச்சி	இயல்பு
5	சந்திகம்	கீல்களில் நின்று இயற்கையாய் எல்லாக் கீல்களையும் ஒன்றோடொன்று பொருத்தி தளர செய்யும்	பாதிப்பு (கீல்களில் நீட்டி மடக்க சிரமம்).

மூட்டுகளில் வலி, வீக்கம், கீல்கள் நரியின் தலைபோல் காணப்படும். நீட்ட மடக்க முடியாது. நெறி கட்டிக் கொள்ளும்.

மருத்துவம்

மூன்றிலொன்ற யர்ந்ததை முன்னறிந்து
முந்தியதனை யொழித்திட மருந்திடு
தணியும் நோயின் தந்திரமிதுவே
பேணிக் கணித்திடின் பிறவாய் பின்குணம்

- நோய்நாடல் நோய் முதல் நாடல் - பகுதி-1

The treatment in Siddha system includes not only the removal of signs and symptoms of a disease but also in total uprootment of the diseases.

This is achieved by normalizing the deranged Mukkutram there by retaining body's natural health. The recurrence of the disease is prevented by the practice of Yoga and Pranayama.

According to siddha system line of the treatment is divided in to three. Treatment is not only for perfect healing but also for the prevention and rejuvenation. The basic methods used in Siddha for treating disease are

1. Kappu [Preventin]
2. Neekam [Treatment]
3. Niraivu [Restoration]

1. Kappu: [Prevention]

The preventive Azhal keel vaayu is:

1. Control the body weight by diet and exercise

2. Modify the nature of work which gives stress to a particular joint.

3.Avoid excess intake of sour, astringent and bitter tasted foods.

In Azhal Keel Vayu the deranged Vatham and other toxic products of digestion and metabolism is brought to its normal state by purgation. (விரேசனம்)

விரேசனத்தால் வாதந்தாமும்:

15ml of vellai ennai is given with luke warm water at early morning (single dose) before starting the treatment with trial drug.

a) INTERNAL MEDICINE:

Kalinga Mathirai - 65mg in two divided dose/day after food.

b) EXTERNAL MEDICINE:

KODIVELI THYLAM - External application over the affected joints.

c) EXTERNAL THERAPY (PATTRU):

Apart from other department Sirappu Maruthuvam, department gives equal importance to External therapies in Siddha System of medicine. There are several complementary therapies followed in Siddha System of Medicine such as Kattu, Pattru, Nasiyam, Attaividal, Thokkanam, Ottradam, Varmam, Asanam, Vedha etc.,

The External therapies which are taken into account for this study is

1. PATTRU:

The drugs are heated with castor oil and apply as PATTRU.

1) Introduction

Puramaruthuvam Patru is one of the external therapies for instant remedy in treating headache, jaundice, sunstroke, abscess, fistula, hemorrhoids, chronic wounds, carbuncles, tumour, filarial swelling and lymphadenitis as explained by Therayar in his book Tharu. It is placed in second position at 32 external therapies series.

Patru is called as a poultice, which is soft and moist in nature. It is widely used to treat muscular sprain, arthritis, few surgical conditions, haemorrhoids, swellings and abscesses.

The semisolid paste is obtained from plant extracts or by grinding crude raw drugs is gently heated and applied as a thick paste over the affected region.

2) Definition

According to Therayar Patru is a method of applying fine powder or crude drugs grinded with an appropriate liquid as a semi solid poultice and warmed gently or boiled before applying it on the affected area. It is defined as one of a heat therapy by Therayar. It is generally used in the diseased conditions like swellings and abscesses. Eventhough Patru is not practiced under heat therapy, it is mandatory to warm the Patru before application for good prognosis.

3) Purpose

- To make the patient comfortable and fresh.
- To improve circulation
- To control inflammation of skin for redness, injuries, swelling, rashes or other infections
- To prevent the blood clot
- To cure peripheral neuritis
- To bring cure for few surgical conditions
- To incise and drain the abscesses
- To remove or shring haemorrhoid mass
- To reduce scrotal and hernia swellings
- To minimize the topical antibiotics or steroids use

4) Types

According to the physical nature it has wet and dry poultices.

5) Therapeutic sources:

- Plant parts such as leaves and barks
- Egg yolk, Mother milk, Other milks, curd, urine
- Inorganic distilled solutions

6) Specifications

The treatment room has following specifications

- 10 x 10 feet room
- Separate rooms for men and women
- Screen
- Steamer
- Treatment chamber (Sitting or lying)
- Wahsbasin
- Bathroom
- Floor mat

- Electric face steamer

7) Eligible Criteria

Not eligible in

- Cellulitis
- Communicable diseases
- Children below 3 years

8) Articles Required

Patru is a fresh wet preparation and heated before use. Generally it has 2 steps. A fresh Patru is prepared using various drugs, gently warmed or boiled and finally applied on the affected areas.

a) For preparation

- Stone mortar and pestle for grinding
- Steel mortar and rod for crushing
- Stove or ovan
- Mud or Iron deep frier
- Knife
- Wood and steel spoons

b) For administration

- A screen for privacy
- Wash / Sponge cloths-2
- Bath towel-1
- A new set of clothing
- Containers of sterile solution, hot and cold water
- Wash basin
- A tray containing gloves, gauze role cotton role, bath soap, surgical spirit, surgical knife, scissor, castor oil, gingelly oil, nail cutter, kidney tray, tissue paper, paper bag.
- Waste bin
- Surgical gloves

9) Appropriate therapy timings

- The ideal timings for applying Patru are in the morning for curing Vali related problems, noon for Azhal disorders and evening for Iyam disorders.

10) Procedure

It has three steps

- Procedure for preparation

- Procedure for administration
- Procedure for removal

a) Preparation

- Purify (Suthi murai) the required drugs
- Crush and grind with appropriate liquid
- Store in a sterile container

b) Administration

- Assemble all the articles at therapeutic room bedside
- Patient is to be asked to pass urine before beginning the procedure
- Explain the procedure to the patient
- Patient may be performed either in sitting or lying down (Prone, supine or lateral) positions.
- Screen the patient for privacy
- Cover the areas with apron or cloth except the affected area
- Wash the site and clean dry with sterile cloth gently
- Gently heat or boil the prepared Patru with the liquid
- Apply the preparation on the site directly with a special care
- Ask the patient to wait for 30-45 minutes without moving or shaking the site to prevent the fall down of the wet matter
- The entire treatment of Patru is usually given for one time in a day at an interval of 3-7 days upto 3 Patru.

c) Removal

- Retain the Patru on the site for a period of 3 hours and upto 3 days.
- Remove the Patru Kattu carefully making it wed by adding sterile water and wash the site with lukewarm water or cold water
- Wipe the place with dry cloth

11) Care of Articles and Patients after Procedure

- Dispose the skin debris and drug litter
- Clean the table with soap or antiseptic solution
- Autoclave the articles subjected to procedure
- Wash your hands well
- Remove the wastes as per BMW guidelines
- Leave the patient comfortable

12) Indications

- Abscess
- Achilles tendonitis
- Ano-rectal diseases
- Arthritis
- Bubo
- Calcaneal spur
- Carbuncle
- Corn
- Disc diseases
- General chemical toxicity
- Heavy metal toxicity
- Lymphedema
- Radiation and chemotherapy recovery
- Relaxation and enjoyment
- Scrotal swelling
- Skin Diseases
- Stress
- Swelling
- Wounds

13) Contra-Indications

- Deep ulcers with foreign bodies
- Cellulitis
- Gas gangrene

14) Duration

- 3 hours to 7 days

15) Shelf-life period

- Not mentioned

16) Cautions

- Record if any abnormal changes have been observed in skin and bring it to the notice of Nursing therapist or doctor.
- If burning pain, itching and discharge increased the Patru may be removed immediately

17) Scientific validation:

The process during therapy

- Cleans the surface impurities
- Protects the topical skin from toxins Removes the dead cells
- Improves the nourishment to the adjacent cells
- Posessess emollient, anti-microbial, anti-allergic, antiseptic, analgesic and anti inflammatory activities
- Increases the peripheral circulation and healing process
- Acts as chemical cautery to open and drain the abscesses
- General systemic support by stimulating the lymphatic system
- Comprehensive cleansing methodology

18) Similar Therapies

- Dermal Batch
- Dermal Paste
- Supra Dermal Pack
- Topical application
- Topical cataplasm

தொக்கணம்:

தொக்கணம் = தொக்கு + அணம் தோலோடு அணைத்து கையாளப்படும் மருத்துவமுறையாகும். இதுவே மர்த்தனம் எனப்படும். வளியால் உண்டாகக்கூடிய நோய்கள் எல்லாவற்றையும் நீக்குவதற்கு பயன்படும்.

"மர்த்தன மாகிய தொக்கணத் தின்செயல் வகுப்பேனே - சதா
நிந்தமும் வாதம் பிணித்த பிணப்பைத் செகுப்பேனே
மல்லகரான பிடகர்கை யென்கிற வாளாலே - பிணி
வல்லியை மெய்யினிற் சேதிப்பராந் திறமை வாளாலே
திட்டலிறுக்கல் பிடித்தல் முறுக்கல் கை தைவந்து - கரங்
கட்ட லெழுத்த விழுத்தல் மல்லாத்துதல் கைவந்து
அசைந்தலில் வொன்பது மத்தனத்தின் திற மானாலும்...."

- சித்த அறுவை மருத்துவம்

தொக்கணத்தின் செய்முறை:

தொக்கணத்தின் செய்முறையானது ஒன்பது வகைப்படும் அவை

1. தட்டுதல் - குத்துதல்
2. இறுக்கல்
3. பிடித்தல்
4. முறுக்கல்

5. கைகட்டல்
6. அழுத்தல்
7. இழுத்தல்
8. மல்லாத்துதல்
9. அசைத்தல்

தொக்கணத்தின் பண்பு

"தொக்கதணத்தி னாலிரத்தந் தோல் ஊணிவைகட்கு
மிக்கு சவுக்கியஞ்ச மீரனும் போ-மெய்க்திக
புட்டியுறக்கம் புணர்ச்சி யிவை கதிக்கும்
பட்ட அலைச்சலறும் பார்"

- சித்தர் அறுவை மருத்துவம்

பயன்கள்:

- ❖ உடலில் பரிசித்து வரும் காற்றினால் உண்டாகின்ற நோய்க்கு பிடித்தல் தொழில் மருந்தாகும்.
- ❖ உடம்பிலுள்ள இரத்தம், தோல், ஊன் இவைகளுக்கு பலன் உண்டாகும். தூக்கக் கெடுதியால் உண்டாகும் உடற்சோர்வு நீங்கும்.
- ❖ வாதப்பிணியினால் எழுந்திருக்க முடியாதவரையும் எழுந்து நடக்கச் செய்யும்.
- ❖ பக்கவாதம், முடக்குவாதம் இவைகள் மிக்க நாளாகின் தொக்கணத்தினால் தீரும்.
- ❖ மேலும் பிடிப்பு, சுளுக்கு, உள்வீச்சு, புறவீச்சு, தனுர்வாயு, பாரிசவாயு நீங்கும்.
- ❖ ஐயந் தன்னிலைப்பட்டு தூல நோயும், மலட்டு நோயும் போய்விடும்.

The above nine are the Thokkanam procedure in our system. In the In-patient ward, the author had advised the Thokkanam methods for Chronic Azhal Keel Vayu patients.

பத்தியம் (Dietary restrictions):

According to the nature of the illness and the ddrug administered, the patients were advised to follow certain special dietary method during the course of treatment. This special dietary regimen is said to be "Paithiyam".

பத்தியத்தினாலே பலனுண்டாகும் மருந்து
பத்தியங்கள் போனால் பலன் போகும் - பத்தியத்தில்
பத்தியமே வெற்றி தரும் பண்டிதர்க்கு ஆதலினாற்
பத்தியமே யுக்தி யென்பார்.

- தேரையர் வெண்பா பாடல்-449

Advantages of the diet regimen:

- Proper diet regimen enhances the bio-availability of the drug & Reduces harmful effect of the drug.
- Sometimes food may antagonize the drug effect if diet regimen is not followed strictly.
- Maintanance of the health

"கடுக நற்றிலத் தெண்ணெய் கூழ்ப்பாண்டங்கள் கடலை
வடுவ தாகிய தெங்குமா வருக்கை நற்காயம்
மடிவி லாதவெள்ளுள்ளி கொள் புகையிலை மதுபெண்
இடறு பாகலோ டகத்தி நீக்கிலடச் சபாத்தியம்"

- சித்த மருத்துவாங்க சுருக்கம்

கடுகு எள்நெய், புளி, கல்யாண பூசணிக்காய், கள், கடலை, தேங்காய், மாங்காய், பலா, காயம், கொள், புகையிலை, பாகல், அகத்தி இவைகளை மருந்துண்ணும் காலங்களில் நீக்க வேண்டும்.

புளிதுவர் விஞ்சும் கறியால் பூரிக்கும் வாதம்

புளிப்பு, துவர்ப்பு சுவையுள்ள உணவு வகைகளை நீக்க வேண்டும்.

பத்தியத்திற்கு ஆகும் பொருட்கள்:

கத்திரிப்பிஞ்சு, முருங்கைப்பிஞ்சு, அவரைப்பிஞ்சு, வாழைப்பிஞ்சு, அத்திப்பிஞ்சு, சுண்டைவற்றல், முளைக்கீரை, பொன்னாங்காணி, புடலங்காய், பீர்க்கங்காய், அறுகீரை நெய், பால், மோர், வெள்ளாட்டு மாமிசம் முதலியன.

MODERN ASPECT

ANATOMY OF KNEE:

Knee anatomy is about the structure of the knee – that is, the parts that makeup the knee. This article also tells you how a normal knee works and provides resources for problems of the knee joint or its parts including knee injuries.

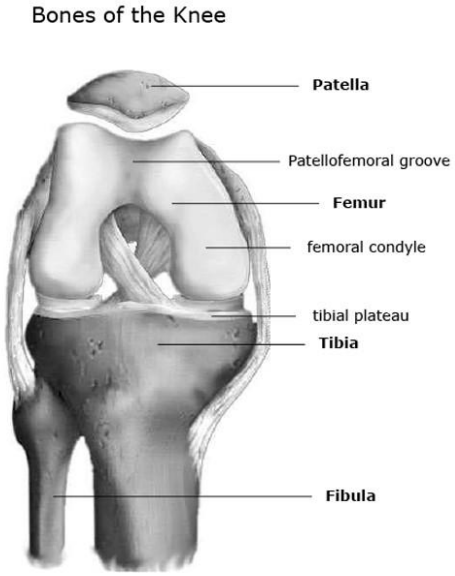
Our knee is the most complicated and largest joint in our body. It's also the most vulnerable because it bears enormous weight and pressure loads while providing flexible movement. When we walk, our knees support 1.5 times our body weight; climbing stairs is about 3-4 times our body weight and squatting about 8 times.

The knee joint is a synovial joint which connects the femur, our thigh bone and longest bone in the body, to the tibia, our shinbone and second longest bone. There are two joints in the knee the tibiofemoral joint, which joins the tibia to the femur and the patellofemoral joint which joins the kneecap to the femur. These two joints work together to form a modified hinge joint that allows the knee to bend and straighten, but also to rotate slightly and from side to side.

The knee is part of a chain that includes the pelvis, hip, and upper leg above, and the lower leg, ankle and foot below. All of these work together and depend on each other for function and movement.

The knee joint bears most of the weight of the body. When we're sitting, the tibia and femur barely touch; standing they lock together to form a stable unit. Let's look at a normal knee joint to understand how the parts (anatomy) work together (function) and how knee problems can occur.

STRUCTURES OF THE KNEE:



The main parts of the knee joint are bones, ligaments, tendons, cartilages and a joint capsule, all of which are made of collagen. Collagen is a fibrous tissue present throughout our body. As we age, collagen breaks down.

The adult skeleton is mainly made of bone and a little cartilage in places. Bone and cartilage are both connective tissues, with specialized cells called chondrocytes embedded in a gel-like matrix of collagen and elastin fibers. Cartilage can be hyaline, fibrocartilage and elastic and differ based on the proportions of collagen and elastin. Cartilage is a stiff but flexible tissue that is good with weight bearing which is why it is found in our joints. Cartilage has almost no blood vessels and is very bad at repairing itself. Bone is full of blood vessels and is very good at self repair. It is the high water content that makes cartilage flexible.

Bones of the Knee

The bones give strength, stability and flexibility in the knee. Four bones make up the knee :

- **Tibia** —commonly called the shin bone, runs from the knee to the ankle. The top of the tibia is made of two plateaus and a knuckle-like protuberance called the tibial tubercle. Attached to the top of the tibia on each side of the tibial plateau are two crescent-shaped shock-absorbing cartilages called menisci which help stabilize the knee.
- **Patella**—the kneecap is a flat, triangular bone; the patella moves when the leg moves. It's function is to relieve friction between the bones and muscles when the knee is bent or straightened and to protect the knee joint. The kneecap glides along the bottom front surface of the femur between two protuberances called femoral condyles. These condyles form a groove called the patellofemoral groove.
- **Femur**—commonly called the thigh bone; it's the largest, longest and strongest bone in the body. The round knobs at the end of the bone are called condyles.
- **Fibula**—long, thin bone in the lower leg on the lateral side, and runs along side the tibia from the knee to the ankle.

Ligaments of the Knee

The knee works similarly to a rounded surface sitting atop a flat surface. The function of ligaments is to attach bones to bones and give strength and stability to the knee as the knee has very little stability. Ligaments are strong, tough bands that are not particularly flexible. Once stretched, they tend to stay stretched and if stretched too far, they snap.

- **Medial Collateral Ligament** (tibial collateral ligament) – attaches the medial side of the femur to the medial side of the tibia and limits sideways motion of your knee.
- **Lateral Collateral Ligament** (fibular collateral ligament) – attaches the lateral side of the femur to the lateral side of the fibula and limits sideways motion of your knee.
- **Anterior cruciate ligament** – attaches the tibia and the femur in the center of your knee; it's located deep inside the knee and in front of the posterior cruciate ligament. It limits rotation and forward motion of the tibia.
- **Posterior cruciate ligament** – is the strongest ligament and attaches the tibia and the femur; it's also deep inside the knee behind the anterior cruciate ligament. It limits the backwards motion of the knee.
- **Patellar ligament** – attaches the kneecap to the tibia

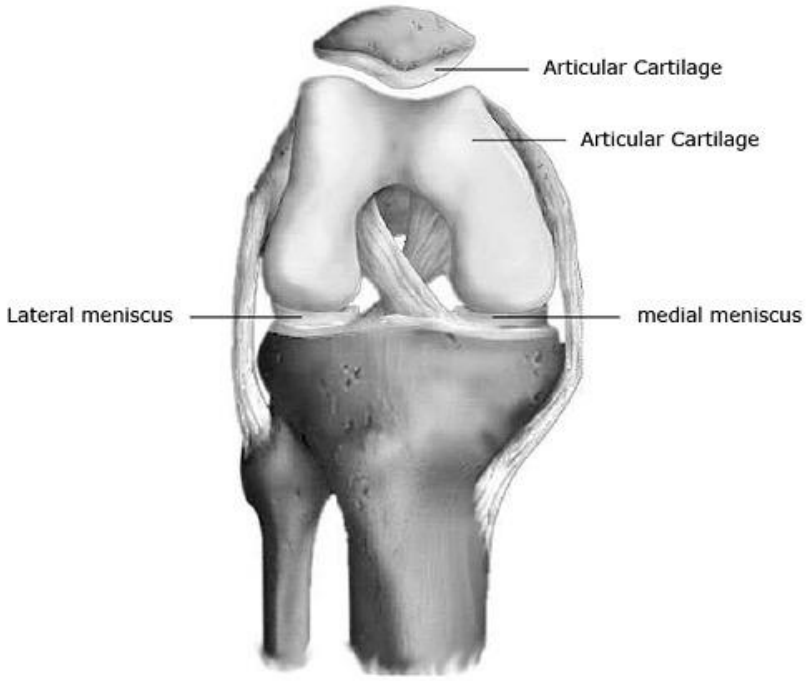
The pair of collateral ligaments keep the knee from moving too far side-to-side. The cruciate ligaments crisscross each other in the center of the knee. They allow the tibia to "swing" back and forth under the femur without the tibia sliding too far forward or backward under the femur. Working together, the 4 ligaments are the

most important in structures in controlling stability of the knee. There is also a patellar ligament that attaches the kneecap to the tibia and aids in stability. A belt of fascia called the iliotibial band runs along the outside of the leg from the hip down to the knee and helps limit the lateral movement of the knee.

Tendons in the Knee

Tendons are elastic tissues that technically part of the muscle and connect muscles to bones. Many of the tendons serve to stabilize the knee. There are two major tendons in the knee—the quadriceps and patellar. The **quadriceps tendon** connects the quadriceps muscles of the thigh to the kneecap and provides the power for straightening the knee. It also helps hold the patella in the patellofemoral groove in the femur. The patellar tendon connects the kneecap to the shinbone (tibia)—which means it's really a ligament.

Cartilage of the Knee

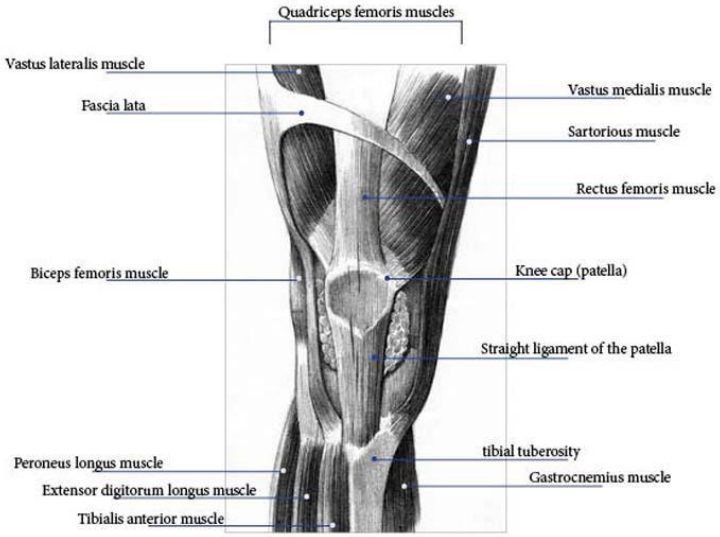


The ends of bones that touch other bones—a joint—are covered with articular cartilage. It's gets its name "articular" because when bones move against each other they are said to "articulate." Articular cartilage is a white, smooth, fibrous connective tissue that covers the ends of bones and protects the bones as the joint moves. It also allows the bones to move more freely against each other. The articular cartilages of the knee cover the ends of the femur, the top of the tibia and the back of the patella.

In the middle of the knee are menisci—disc shaped cushions that act as shock absorbers.

- **Medial meniscus**
  - The medial meniscus is made of fibrous, crescent shaped cartilage and attached to the tibia, on the inside of the knee
- **Lateral meniscus**
  - This is made of fibrous, crescent shaped cartilage and attached to the tibia, on the outside of the knee

- **Articular cartilage**
  - Found on the ends of all bones in any joint—in the knee joint it covers the ends of the femur and tibia and the back of the patella. The articular cartilage is kept slippery by synovial fluid (which looks like egg white) made by the synovial membrane (joint lining). Since the cartilage is smooth and slippery, the bones move against each other easily and without pain.
- In a healthy knee, the rubbery meniscus cartilage absorbs shock and the side forces placed on the knee. Together, the menisci sit on top of the tibia and help spread the weight bearing force over a larger area. Because the menisci are shaped like a shallow socket to accommodate the end of the femur, they help the ligaments in making the knee stable. Because the menisci help spread out the weight bearing across the joint, they keep the articular cartilage from wearing away at friction points.
- The weight bearing bones in our body are usually protected with articular cartilage, which is a thin, tough, flexible, slippery surface which is lubricated by synovial fluid. The synovial fluid is both viscous and sticky lubricant. Synovial fluid and articular cartilage are a very slippery combination—3 times more slippery than skating on ice, 4 to 10 times more slippery than a metal on plastic knee replacement. Synovial fluid is what allows us to flex our joints under great pressure without wear.



The muscles in the leg keep the knee stable, well aligned and moving—the quadriceps (thigh) and hamstrings. There are two main muscle groups—the quadriceps and hamstrings. The quadriceps are a collection of 4 muscles on the front of the thigh and are responsible for straightening the knee by bringing a bent knee to a straight position. The hamstrings is a group of 3 muscles on the back of the thigh and control the knee moving from a straight position to a bent position.

The Joint Capsule

The capsule is a thick, fibrous structure that wraps around the knee joint. Inside the capsule is the synovial membrane which is lined by the synovium, a soft tissue that secretes synovial fluid when it gets inflamed and provides lubrication for the knee.

Bursae around the knee:

There are about 13 bursae around the knee.

Anterior - fourbursae.

Lateral - fourbursae.

Medial - five bursae.

Anterior bursae:

1. Subcutaneous prepatellar busa
2. Subcutaneous infrapatellar bursa
3. Deep infrapatellar bursa
4. Supra patellar bursa.

Lateral bursae:

1. Bursa deep to lateral head of gastrocnemius
2. Bursa between fibular collateral ligament and biceps femoris.
3. Bursa between fibular collateral lingament and tendon of popliteus.
4. Bursa between tendon of popliteus and lateral condyle of tibia.

5. Medial bursae:

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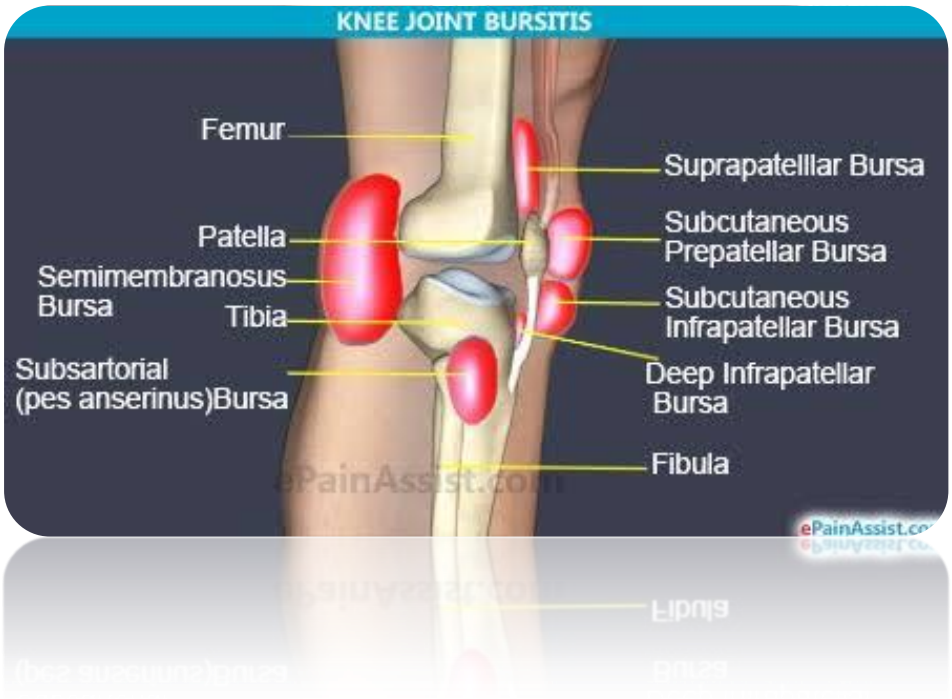
Medial bursae:

1. Bursa deep to medial head of gastrocnemius
2. Bursa deep to tibial collateral ligament
3. Ansarine bursa.
4. Semimembranosus bursa
5. Bursa between the tendons of semimembranosus and semitendinosus.



Relations of Knee joint

Anteriorly:

1. Anterior bursae
2. Ligamentum patellae.
3. Patellar plexus of nerves Posteriorly

A. At the middle:

1. popliteal vessels
2. Tibial nerve
3. Middle genicular vessels and nerve

B. Posterio laterally:

1. Lateral head of gastrocnemius
2. Plantaris
3. Common peroneal nerve.

C. Posterio medially:

1. Medial head of gastrocnemius
2. Semitendinosus
3. Semimembranosus
4. Gracitis
5. Popliteus

Medially:

1. Sartorius, gracilis and semitendinosus
2. Great saphenous vein with saphenous nerve and vessels
3. Semimembranosus
4. Inferior medial genicular vessels and nerve

Laterally:

1. Biceps femoris
2. Tendon of popliteus
3. Inferior lateral genicular vessels and nerve.

Blood supply:

Knee joint is supplied by

1. Genicular branches of popliteal artery
2. Descending branch of lateral circumflex femoral artery
3. Two recurrent branches of anterior tibial artery.
4. Circumflex fibular branch of posterior tibial artery.

Nerve supply:

1. Femoral nerve, through its branchesto vasti.
2. Sciatic nerve, throughthe genicular branches of tibial and common peroneal nerve.
3. Obturator nerve, through its posterior division

Movements of knee joint

Active movements at the knee are

1. Flexion
2. Extension
3. Medial rotation
4. Lateral Rotation

Flexion and extension are the chief movements of much greater range than rotations. These are permitted in the upper compartment of the joint, above the menisci. Flexion and extension take place in transverse axis. During extension the axis moves upwards and forwards. During flexion the axis moves downwards and backwards.

Rotatory movements at the knee are of a smaller range than that of flexion and extension. Rotations take place around a vertical axis and are permitted in the lower compartment of the joint, below the menisci.

Movements of the knee joint:Flexion and extention are the main knee

movements,some rotations occur when the knee flexed.

Movement	**Degrees possible**	**Primary muscle producing movement**	**secondary muscle producing movement**
Extension	0	Quadriceps femoris	Tensor fascialata
; Flexion	120 degree-hip ext 140 degree-hip flexed 160 degree- passively	Hamstrings Short head of biceps	Gracilis Sartorius Popliteus
Medial rotation	10 degree with knee flexed 5 decree with knee extended	Semimembranosus Semitendinosus popiiteous	Gracilis Sartonous
Lateral rotation	30 decree	Biceps fcraons	

Locking and unlocking of the knee (conjunct rotations): Locking:

It is defined as medial rotation of femur on tibia during terminal stages of extension of the knee, when feet are supporting the body weight, when knee is locked, it is completely rigid and all ligaments of the joint are taut.-

UnLocking:

It is defined as lateral rotation of femur on tibia during initial stages of flexion of the knee, when feet are supporting the body weight. It is brought about by popliteus. It can be further flexed by the hamstrings.

Adjunct rotations: (or) Independent active rotations:

It can occur only in flexed knee. They contribute to the twisting movements of the body when feet are fixed.

Accessory or passive movement:

It can be performed in a partially flexed knee. These movements include

1. A wider range of rotation
2. Anteroposterior gliding of tibia on femur.
3. Some adduction and abduction.
4. Some separation of tibia from femur.

Osteoarthritis

Introduction

Osteoarthritis (OA), also know as degenersative joint disease. In Greekwood osteon for bone, arthron for joint & the suffix It's for inflamnation. Osteoarthritis refers to a clinical syndrome of joint pain accompanied by varying degrees of functional limitation and reduced quality of life. It is the most common form of arthritis, and one of the leading causes of pain and disability worldwide. The most commonly affected peripheral joints are the knees, hips and small hand joints. Pain, reduced function and effects on a person's ability to carry out their day-to-day activities can be important consequences of osteoarthritis. Pain in itself is also a complex biopsychosocial issue, related in part to a person's expectations and self-efficacy (that is, their belief in their ability to complete tasks and reach goals), and is associated with changes in mood, sleep and coping abilities. There is often a poor link between changes visible on an X-ray and symptoms of osteoarthritis, minimal changes can be associated with a lot of pain, or modest structural changes to joints can occur with minimal accompanying symptoms. Contrary to popular belief, osteoarthritis is not caused by ageing and does not necessarily deteriorate. There are a number of management and treatment options (both pharmacological and non-pharmacological), which this guideline addresses and which represent effective interventions for controlling symptoms and improving function.

Osteoarthritis is characterised pathologically by localised loss of cartilage, remodelling of adjacent bone and associated inflammation. A variety of traumas may trigger the need for **a** joint to repair itself. Osteoarthritis includes **a** slow but **efficient** repair process that often compensates for the initial trauma, resulting in a **structurally** altered but symptom-free joint. In some people, because of either **overwhelming** trauma or compromised repair, the process cannot compensate, resulting in eventual presentation with symptomatic osteoarthritis; this might be thought of as 'joint failure'. This in part explains the extreme variability in clinical presentation and outcome that can be observed between people, and also at different joints in the same person.

There are limitations to the published evidence on treating osteoarthritis. Most studies have focused on knee osteoarthritis, and are often of short duration using single therapies. Although most trials have looked at single joint involvement, in many people ha \ e pam in more tnar. one joint, which may alter the effectiveness of interventions.

Definition

Osteoarthritis is a chronic progressive degenegative disease affecting mainly the articular cartilage of the big weight beging joints of the body mainly in the aged individuals. It is the most common form of arthrities.

Epidemiology

Knee OA principally occur before the age of 50 years. The occurrence of clinically apparent knee osteoartritis in 30% in the population older than 75 years. OA of at least one joint occurs in 80% of this population.

The fact that the incidence of OA increase significantly with age has led to the erroneous ending that OA is simply or age-related degenerative condition. The occurrence of OA increases with age because of ligamentous laxity. The frequency of OA is higher in women than in men.particularly after the age of 50 years

Etidogy

- Gge : Above 60 yrs.
- Heredity
- Abnormal stress & strein on the joints
- Obesity
- Hypemobility
- Orthopedie deformities
- Endolrine disorder like diabetes meiiitus. aeromegaly & hyperparathyroidium sensory newropathias.

Geography In a review of Osteoarthritis in 6 population living in different climates, as determined by latitude.

Older age. The risk of osteoarthritis increases with age.

Sex. Women are more likely to develop osteoarthritis, though it isn't clear why.

Obesity. Carrying extra body weight contributes to osteoarthritis in several ways. It puts added stress on weight-bearing joints, such as your hips and knees. In addition, fat tissue produces proteins that may cause harmful inflammation in and around your joints.

Joint injuries. Injuries, such as those that occur when playing sports or from an accident, may increase the risk of osteoarthritis.

Certain occupations. If your job includes tasks that place repetitive stress on a particular joint, that joint may eventually develop osteoarthritis.

Genetics. Some people inherit a tendency to develop osteoarthritis.

Bone deformities. Some people are bom with malformed joints or defective cartilage, which can increase the risk of osteoarthritis.

Metabolic factors There has been some evidence for a link between Diabetes and Osteo arthritis, possibly through elevated growth hormone levels that alter cartilage metabolism and increase bone density

Mechanical factors It has been long considered that mechanical stress, such as single impact stress, gross anatomical damage

Other diseases. Having diabetes or other rheumatic diseases such as gout and rheumatoid arthritis can increase your risk of osteoarthritis.

Remember the Risk factors : -

- O - Oberity
- S - Sensility or old age
- T-Traum
- E-Emotional stress
- O-Osteoporosis
- A - Alcrhot
- R - Rigorous Lifestyle
- T-Toxing professions
- H - Hormondimbolox
- R - Reyptitive injuries

- I - Indian cufard habits
- T - Axing sports
- I - Improper postural Labrs
- S - Smoking

SITES:

Common sites of primary osteoarthritis:

- Apophyseal joint of the cervical spine.
- Thoraco lumbar spine.
- First carpometacarpal joint.
- Distal interphalangeal joint.
- Patella femoral joint.
- Tibio femoral joint.
- First metatarsophalangeal joint.

Intermediate sites:

- Acromio clavicular joint
- Hip joint

Uncommon sites:

- Shoulder joint
- Elbow joint
- Wrist joint
- Ankle joint

CLASSIFICATIONS:

It could be divided into 2 types

1. Primary or idiopathic osteoarthritis.
2. Secondary osteoarthritis.

PRIMARY OSTEOARTHRITIS

Usually limited to one or a small number of joints.

No exact inflammatory or metabolic condition known to be associated with arthritis is present.

No history of definite injury or trauma.

SECONDARY OSTEOARTHRITIS

May be limited to a small number of joints in injury linked or may be in joints throughout.

Condition that cause damage to cartilage are present, such as -

Inherited disease of iron, calcium or copper storage. Neurologic disorder that result in the loss of nerve function.

Congenital disease that cause an disparity in the joints

History of injury to joints, such as fractures and tears or history of trauma.

PATHOLOGY:-

The pathology of OA provides evidence, of the panarticular involvement of disease.

After an injury to cartilage, Chondrocyles undergo mitosis and clustering.

The metabolic activity of these chondrocyte clusters is high, the net effect of this activity is to promote rroteogly can depletion in the matrix surrounding the condrocytcs.

This disease develops, collagen matrix becomes damaged, the nagative charges of proteoglycans get exposed, and cartilage swells from ionic attraction to water molecules.

Chondrocytes at the basal level of cartilage undergo opoptosis.

In healthy Joints, the synoviom consist of a single discontinuous layer filled with fat and containing two types of cells, macropheges and fibroblasts.

But in OA, it can sometimes edematous and inflamed

There is migration of macrophages from the periphery into the tissue, and cells living the synovium proliferate.

Enz\raes secreated by the Synovium digest cartilage matrix that has been shea led from the surface of the cartilage.

Bone remodding is a prominent feature of hand OA.

Basically, calcium Phosphate, calgium purophosphate dehydrate crystals are present microscopically in most joints with end-stage OA.

Pathological Changes in Osteoarthirits

The disease process usually begins in the antesomedial compartment of

joint.

Transformation of Normal cartilage to Aging cartilage

Several structural and biochemical changes involving the collagenous components of the matrix occur during aging. These changes alter biochemical properties of the cartilage that are essential for the distribution of forces in the weight bearing zone.

Articular cartilage - Changes

- The regressive changes are most marked in the weight bearing regions of articular cartilages.
- Initially there is loss of cartilaginous matrix(proteoglycans) resulting in progressive loss of normal metachromasia.
- Focal loss of chondrocytes and at other places, proliferation of chondrocytes forming clusters
- Further progression of the process cause loosening, flaking and Assuring of the articlular cartilage resulting in breaking off of pieces of cartilage thus 'exposing subchondral bone'.
- Radiologically this progressive loss of cartilage is apparent as ‘narrowed joint space*.
- Molecular mechanism of damage to cartilage in osteoarthritis appears to be the breakdown of collagen type II probably by 1L-1, TNF and nitric oxide.

II. Changes in the bone

- The denuded subchondral bone appears like ‘polished ivory'.
- There is death of superficial osteocytes and increased osteoclastic activity causing rarefaction. ‘Microcyst formation and occasionally microfractures of the subjacent

bone'.

- Changes result in remodelling of bone and changes in the shape of the joint surface leading to the flattening and 'mushroom like appearance' of the articular end of the bone.
- The margins of the joints respond to cartilage damage by 'osteophyte or spur formation'.
- These osteophytes are cartilaginous outgrowths at the joints margins, which later gets ossified.
- Osteophytes give the appearance of lipping of the affected joint
- Loosened and fragmented detached osteophytes may form free "joint mice or loose bodies"

III Changes in the synovium

- Initially there are no pathologic changes in the synovium.
- But in advanced cases there is low grade chronic synovitis and villous hypertrophy.
- There may be some amount of synovium effusion associated with chrome synovitis.

Glycosaminoglycans are modified qualitatively ; they become shorter as the cartilage ages. The concentration of type 6 keratan sulphate increases during aging, to the detriment of type 4 keratan sulphate.

These quantitative and qualitative changes in proteoglycan reduce the capacity of the molecules to retain water. Thus aging cartilage contains less water which alters the biochemical properties of the cartilage. Fissures that develop in cartilage during aging are mainly due to stress fractures of the collagen network.

TABLE 173.3 STAGING OF OSTEOPHYTE DEVELOPMENT ACCORDING TO GELSE AND AIGNER (2003)

Stage 0 (normal)	**Normal Periosteum**
Stage I	Slight thickening of the periosteum incipient formation of fibro cartilage (some round cells, some metachromatic tissue staining of the extra cellular matrix) No/slight active bone formation Molecular markers: Focal collagen type II expression No collagen type X
State II	Pronounced thickening of the eriosteal layers Well-established formation of fibro cartilage (many round cells, strong metachromatic tissue staining of the extra cellular matrix) Some / moderate bone formation Molecular markers: Distinct collagen type II expression No collagen type X
Stage III	Pronounced thickening of the periosteal layers Well - established formation of fibro cartilage (many round cells, strong metachromatic tissue staining of the extra cellular matrix, formation of lacunae) Strong active bone formation Molecular markers: Distinct follagen type II expression Collagen type X expression in basal areas Collagen type VI: intermixed with collagen types I, III, and V in the inter cellular matrix.
Stage IV	Significant thickening of the periosteal layer Apparent formation of fibro cartilage with partial hyalinization of the extra cellular matrix (chondrocyte-like cells in lacunae, strong metachromatic tissue staining of the

	extra cellular matrix) Some active bone formation Molecular markers: Ubiquitous presence of collagen type II Collagen type X in basal areas Collagen type VI: mostly per cellular

TYPING, STAGING, AND GRADING OF JOINT CARTILAGE ALTERATIONS IN OSTEOARTHRITIS

Overall, the classification of OA cartilage degeneration is rather complex because all patients present with at least to some extent dif-ferent histories, symptoms, and morphologic changes. Common to all of them is some sort of structural joint (cartilage) damage, pain, and limitation in joint movement.

Obviously, many other tissues apart from the articular cartilage are involved in this process, but, traditionally, the cartilage has been used to score OA severity. In general, the process of joint destruction can always be evaluated for the pathogenesis for its extent and for the degree of the most extensive focal damage. "'I\ping" is mostly related to “primary" and “sec-ondary" OA. Primary OA is most frequently observed. Whereas the addition “primary" implies that there is no obvious cause, still minor preexisting conditions also exist in this condition . The major causes leading to secondary OA joint degeneration are listed “Grading” and “staging” have been much more under debate, also regarding the basic meaning of botii words: “grading” should refer to the evaluation of histologic changes at one site of joint destruction, whereas “staging” should refer to the overall disease process. Both represent an attempt to score processes relevant to the disease.

However, clearly some of the subcategories of the Mankin score do not belong to primary cartilage degeneration but describe features observed in secondary cartilage formation and should be excluded in future scoring attempts. The Outerbridge system was primarily described for the patella but later successfully applied to other joints. Whereas Mankin addresses the piece of cartilage under the microscope, th$_e$ staging systems look at the whole joint surface mostly macroscopicallv. At the site of the highest cartilage damage, grading and staging are closely con-elated. Clearly, a pure macroscopic staging system is too rough for scientific puiposes and. thus, a new staging system has been proposed by Pritzker and colleagues that combines histopatho-logic grading parameters with the extension of the lesions. Doubtless, along with new scientific insights and more extensive and specified medical options, we will need more elaborated and

validated “grading” and “scoring” systems, and this will be a major task in the near future.

Of crucial importance will be the use of a defined and unified nomenclature to make studies, descriptions, and results comparable, whereas at the moment many similar-sounding terms are used for partly different phenomena and differently sounding words for the same

TYPING AND GRADING OF SYNOVIAL MEMBRANE ALTERATIONS IN OSTEOARTHRITIS

Clinically relevant OA joint disease is invariably associated with some sort of synovial pathology. This reflects the notion that there is a direct relation between clinical symptoms and the synovial reaction in OA and most likely these changes in the synovial membrane are at least partly involved in the progression of the disease. In OA synovial speci-mens, in principle, four different types of OA synoviopathies are found: hyperplastic, inflammatory, fibrotic, and detritus-rich synoviopathy.

Detritus-rich synovitis, which is found in end-stage OA disease, is due to abundant macromolecular cartilage and bone detritus (i.e., bone and cartilage **fragments** attached to or incorporated into the synovial membrane; i) in addition to **abundant** molecular debris that is not visible microscopically. Besides the debris, a significant amount of fibrinous exudate is found at the surface of the synovial membrane. This exudate may be combined with incorporated fibrin, reflecting longer ongoing fibrinous exudation already being organized. Detritus-rich synoviopathy usually contains a minor inflammatory cell infiltrate consisting of lymphocytes and granulocytes as well as some foreign-body giant cells.

Another form of OA synoviopathy found in late-stage disease, fibrotic OA synoviopathy is mainly characterized by the shortening and thickening of the joint capsule, which is partly responsible for some symptoms, m particular joint stiffness, seen in OA patients.

The most interesting of the OA synoviopathies m terms of patho-genesis is the inflammatory OA synoviopathy, which displays moder-ately extensive

lymphocytic infiltrates. It is intriguing to speculate whether this condition reflects some kind of autoimmune aspcct that msv he occurring, at least in ui!> mjosci **01** '.'A patients. Interestingly, the lymphocytic infiltrate in the subsynovial stroma appears to correlate directly with interleukin (IL)-ip in the synovial fluid as well as matrix metalloproteinase-1 (MMP-1) expression by synoviocytes, suggesting a direct stimulatory role of the inflammatory cells on the activity of the synovial lining cells. In any case, the pres-ence of inflammation in a significant portion of OA patients clearly points to the option of anti-inflammatory therapy at least for some subsets of OA patients. In early OA, mostly hyperplastic OA synoviopathy is found . This pattern shows only moderate synovial hyperplasia with or without cellular activation but .without significant capsular fibrosis or thickening and without significant inflammatory infiltrates or mac-romolecular detritus. Overall, three forms of alterations of the synovial surface can be observed:

Increased cytoplasmic volume of the usually flat synovial lining cells. These cells may even become cuboidal or even cylindrical, suggesting that they have been activated in some way.

The under normal conditions single (flat) cell layer of synovial lining cells can proliferate to form as many as five cell layers

The whole synovial surface, including the underlying stroma, can become hyperplastic and form the classic synovial villi.

Synovial hyperplasia **per se** can be found in all forms of OA synovi-opathy and in chronic synovitis. Thus, villous hyperplasia is largely a non-specific feature of chronic synovial alteration and activation.

So far, no well-established scoring system is available for human OA synoviopathy. Recently, a simple scoring system was proposed by Krenn and colleagues to separate inflammatory and non-inflammatory synovial alterations mainly based on the intensity of inflammatory infiltrates, synovial and stromal activation. In 2002 we proposed a scoring system specifically for OA synoviopathy basically dividing the OA-associated synoviopathies into four categories

hypertrophic, fibrotic, inflammatory, and detritus-rich. These can always be subdivided into mild, moderate, and strong depending on the intensity of changes present.[5] This presumably reflects the different roles of OA synoviopathy and its implications for the clinical picture. Whatev er scoring system is used, importantly one should average the changes present in the overall joint and not just rely on one particular region, because synovial changes are notoriously heterogenous w ithin affected joints.

EVALUATION OF REGENERATIVE CARTILAGE FORMATION IN OSTEOARTHRITIC JOINTS (CHONDRO-OSTEOPHYTE FORMATION)

Central for the basic understanding of osteophytic tissue is the analysis of the developmental steps during osteophyte formation. Thus, although it is clear that osteophyte development is a continuous process and many osteophytes show different steps in various portions at the time one ran nefine hnsR- stei'K based on the cellular phenotype and the matrix composition of the predominating tissue Initially, mesenchymal precursor cells derived either from periosteum or synovium initiate chondrogenic differentiation. This results in fibrocartilage composed of both fibrous and cartilaginous matrix components. In early osteophytes, endochondral ossification is initiated. The deepest cell layer becomes hypertrophic and resembles very much the lowest cells found in the fetal growth plate. Mature osteophytes are characterized by the predominance of a hyaline-cartilage-like extracellular matrix. At a first glance, mature osteophytes can, macroscopically and histologically, easily be mistaken for original articular cartilage. Although hyaline zones in osteophytes resemble articular cartilage in terms of structural composition, there are, nevertheless, certain differences such as a more random cellular arrangement, the lack of a distinct tidemark, and a missing linear subchondral bone plate.

Understanding osteophyte formation and classifying its maturation stage is on the one hand interesting per se for understanding changes going on in the chondro- osseous department in OA joints, but addi-tionally osteophyte formation represents an interesting **in-vivo** model system to understand and evaluate processes occurring after many modem cartilage repair strategies.

Although only a few millimeters thick at most, articular cartilage has an elaborate internal organization.lt has 4 Zones.

- The superficial zone
- The intermediate zone
- The deep zone
- The calcified cartilage zone.

Within zones, three regions or compartments are seen

- The pericellular region
- The territorial region and
- The interterritorial region.

CARTILAGE ZONES.

Cartilage zones differ in matrix composition, water concentration, collagen fibril orientation and cell alignment, and morphology

Superficial zone.

It is the smallest cartilage zone and it forms the joint surface.

Deep to this layer, elongated flattened chondrocytes are seen

Middle zone.

The middle of transition zone has numerous times the volume of the superficial zone. Its more spherical cells contain greater volumes of endoplasmic reticulum. Golgi membranes, mitochondria, and glycogen

Deep zone:

The cells of the deep of radial zone look like the spherical cells of the transitional zone but tend to line up themselves in columns. This /one lias Hie largest collagen fibrils,

Calcified Cartilage Zone.

The thin calcified cartilage zone separates the hyaline cartilage from the stiffer Subchondral bone.

Matrix Regions.

Matrix regions differ in their proximity to chondrocytes, collagen content, collagen fibril diameter, collagen fibril orientation, and proteoglycan and noncollagenous protein content and organization.

Growth Cartilage:

Bones elongate by growth of the cartilage forming the physes of growth plates. The complex structure of the physes makes it possible for them to produce precisely directed longitudinal bone growth.

The growth cartilages increase their volume and therefore bone length by synthesizing new matrices and by cell swelling. The organization of the growth cartilage matrix and the surrounding fibrous tissue directs the rising volume of cells and matrices, so that it produces longitudinal bone growth.

In the region of the growth cartilage nearest to the metaphysic, the longitudinal cartilage septae of the growth cartilage mineralize, and in the metaphysis, osteoblasts above the mineralized cartilage bars with new woven bone. Osteoclasts then resorb the w oven bone and calcified cartilage and osteoblasts form lamellar bone to complete the substitute of cartilage by mature bone.

Clinical future

Pain. Knee joint may hurt during or after movement.

Tenderness. Knee joint may feel tender when you apply light pressure to it.

Stiffness. Joint stiffness may be most noticeable when you wake up in the morning or after a period of inactivity

Loss of flexibility. Knee may not be able to move the joint through its full range of motion.

Grating sensation. Knee may hear or feel a grating sensation when you use joint.

Bone spurs. These extra bits of bone, which feel like hard lumps, may form around the affected joint.

On Examination

Tenderness on the joint

Crepitas on moving the joint

Osteophyte Jormation.

Defomity - Varus of the

Effusion - Rare & Transient

Termind limitation of joint movement

Subluxation detected on ligamcat testing

Wasting of quedriceps jemon's muscle.

Me Murray's test

This test checks for meniscal tears and other internal derangement in the knee.

Thessaly's test

This functionally tests menisaus tears in the standing position. Since bending and twisting movements while weight bearing often reproduce pain exacerbating movements.

Pressure.

Such structures include the joint surfeices of the knee cap the femur, the tipia, and the muscles and tendors around the knee.

Effusion test

patellar tap - helpful test for large effusious

Bailottement - defined as a palpatory techinique for detecting (or) investigative a flouting object in the body.

Bulge sign - test for smaller effusions.

Auterior Drawer

The outerior Drawer test examines for any tearing (or) loxity of tue anterior cruciate ligaments

Valus test

The valgus stress text elelcs for medial joint laxity which usually represents an injury to the medical collateir ligaments.

Varus test

The various test stress test checks for joint laxity on the outside of tue knee which usually reponesent an tujary to the lateral collateral ligaments

Effusion (3): **patellar tap test (ballottement test) (1):** Squeeze any excess **synovial** fluid out of the suprapatellar pouch with the index and thumb, slid firmly distallv from a point about 15 cm above the knee to the level of the upper border of the patella. This will also 'float' the patella away from the femoral condyles.

Effusion (4): patellar tap test (2): Place the tips of the thumb and three fingers, of the free hand squarely on the patella, and it quickly downwards towards the femur. A click as the patella strikes the condyles indicates the presence of effusion. Note that if the patella is not properly steadied as described it will tilt, giving a false negative. Note too that if the effusion is **slight** or **tense**, the tap test **m .\bcjicgatire.**

Effusion (5): fluid displacement test (1): Small effusions may be detected by this manoeuvre. Evacuate the suprapatellar pouch as in the patellar tap test before.

Effusion (6): fluid displacement test (2): Stroke the medial side of the joint to displace any excess fluid in the main joint cavity to the lateral side of the joint.

Effusion (7): fluid displacement test (3): Now stroke the lateral side of the joint while watching the medial side closely. Any excess fluid present will be seen to move across the joint and distend the medial side. This test will be negative if the effusion is gross and tense.

Synovial membrane: Pickup the skin and the relaxed quadriceps tendon to assess the thickness of the synovial membrane in the suprapatellar pouch. The **synovial** membrane is thickned in inflammatory conditions, e.g. rheumatoid arthiritis. **and** in vilonodular synovitis.

OA Complication

Capsular herniation OA of the knee is sometimes associated with a marked effusion and herniation of the posterior capsule (Baker's cyst)

Cartilage and boue fragments may give rise to loose bodies, resulting in episode of locking

Rotator Cuf dysfunction OA of the acromio clavicular join may cause rotator culf impingemtents tendonitis (or) cuff puncture.

Spinal Stenosis Long standing hypertrophic OA of the lumbar apophyseal joints may rise to acquired spinal stenosis

Spondylolisthesis in patients over 60 years of age, destructive OA (of the apophyseral joints may result in server segmensal instability and spondylolisthesis (degenerative spondylolisthesis) which almost always occuse at

Differential Diagonisis

Avascular necrosis:

Idiopathic necrosis causes joint pain and local effusion. Early diagnosis is made by MRI. Once bone destruction occurs the X-ray changes can be mistaken for those of Osteoarthritis.The cardinal characteristic features is that in osteonecrosis is the 'joint space' (articular cartilage) is preserved in face of progressive bone **collapse** and deformity.

Rheumatoid arthrities

A number of condition may mimic osteoartharities in knee. They are 1. Rheumatoid arthrities. It is an disorders. It commonly affects women between 24- 40 years. Characteristically it is bilaterally symmetrical Initially it affects the small joints of hand (or) foot and may spread to large joints painful swelling of the joints with stiffness and deformity may occurs. Muscle spasam and muscle wasting maybe prctent. Restriction of movements is **00111111011**. X -ray shows decalcifi cation and dcminished joint space may be seen. RA factor is mosty positive.

Tuberculous Arthritis

Tuberculosis of the knee more common in children then adults. Pain swelling and wasting of thigh muscles are commonly seen. The knee feels warm. Movements are restricted and often painful. Mantoux test is positive and the erythrocyte sedimentation rate may be incresed. X-ray shows generalised decalfication, obiliterationof join space with erosion of the articular ends.

Gonococcal

It occurs 3 weeks after the primary infection. Onset is sudden with fever. It mostly affects knee (or) elbow. Pain redness, head and oedema occur in the affected jion. Gonococcal may be demonstrated in urethral discharge.

DISH: Diffuse Idiopathic Skeletal Hyperostosis

This is a comparatively common disorder of middle aged people, characterized by bone propagation at the ligament and tendon insertions around peripheral joints and the intervertebral discs. On X-ray examination the large bony spurs are easily mistaken for osteophytes.

DISH & osteoarthritis often appear together but DISH is not osteoarthritis, the bone spurs are symmetrically distributed particularly along the pelvic apophyses and all through the vertebral column. When DISH occurs by itself it is usually asymptomatic.

Investigations

- Blood counts, Erythrocyte sedimentation rate, blood chemistry and febrile agglutination tests are negative.
- Thyroid profile reveals a hypothyroid state in 10% to 30% of patients
- Synovial fluid examination serves to differentiate degenerative joint disease from rheumatoid arthritis and infectious arthritis.

Radiological findings

Early X-ray appearance is normal. Then gradually,

- Narrowing of the joint space
- Thinning of the articular cartilage
- Spurs or osteophyte formation
- Subchondral bone cyst formation
- Sclerosis of the subchondral bone.

Radiological Classification of Osteoarthritis knee (Ahlbach) AP weight bearing and lateral View s.

Diagnostic criteria

Formal criteria are **helpful** for diagnosing osteoarthritis in knee joints. The criteria for osteoarthritis **of the** knee include the presence of knee pain plus atleast three of the following characteristics.

Advice:

Each, and egery patient is adviced to do regular yoga excerises which strengthen! quadriceps muse lews and half muscles Avoid movements (or) positions, which increase patella femoral pressure. Avoid sitting crossed legged, climbing stairs and squatting position.

Use of walking sick hold in ipsilateral hand (or) use of crutches to preview stress on affected knee immobilize the knee by knee corest or a brace or classic bandape, if die pain is servere. weight reduction by exercise and diet control in advised.

MATERIALS AND METHODS

The clinical study on Azhal keel vayu (Osteoarthritis of knee joint) was carried out in the post graduate department of sirappu Maruthuvam, Government Siddha Medical College at Palayamkottai. In this Study 40 patients (who satisfy the inclusion criteria and exclusion criteria) were treated as op and IP.

Selection of the patients:

Age : 30-60 years

Sex : Both male and female.

Clinical finding

Inclusion Criteria

The patients were selected on the basis of the following clinical findings.

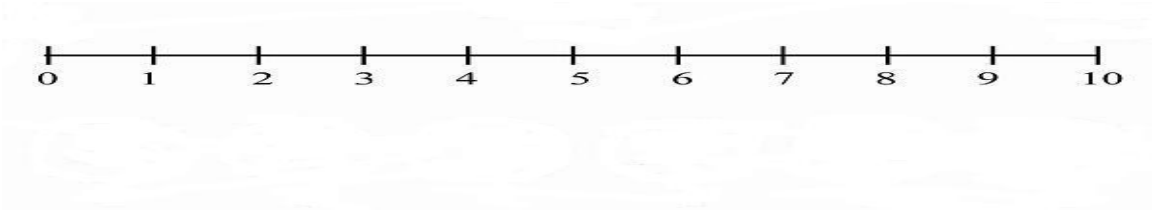
- Patients having symptoms of joint pain of both knee joints, swelling, tenderness, stiffness, crepitation, restricted movement of both knee joints.
- Patient who are willing to give blood samples for laboratory investigation.
- Patients who are willing to take X-ray before and after treatment.
- Patients who are willing to participate in this study with the knowledge of potential risks.

The detailed history was taken from the patient about

1. Occupation
2. Socio Economic Status.
3. Diet and habits.

PAIN ASSESSMENT

UNIVERSAL PAIN ASSESSMENT SCALE



A -0 - No pain

B-1-3 - Mild pain

C-4-6 - Moderate pain

D-7-10 - Severe pain

Reference: Clinical manual for Nursing practice (National Institute of Health warren grant mangneson clinical centre)

GRADATION OF MOVEMENTS:

- G1 - Fit for all activities, do their work without support.
- G11 - Mild pain present in knee joint, mild restricted movement
- G111 - Moderate pain present in knee joint, moderate restricted movements, need some assistance to perform
- G1v - Severe pain, bed ridden

Diagnosis:

The diagnosis was made by following siddha diagnostic methods kalam, poriaridhal, pulanaridhal, udalthathukkal, naadi and envagai Thervu and the diagnosis of Azhal keel vayu obtained which correlated with modern diagnosis of osteoarthrity of knee joints by the X-Ray findings.

Exclusion criteria:

- Cardiac disease
- Rheumatoid arthritis
- Use of narcotic drugs
- Pregnant woman and lactating mother
- Patient with any other serious illness

- History of trauma
- Benign and malignant neoplasm
- Immuno compromised patients
- Children, elderly

WITHDRAWAL CRITERIA:

- Intolerance to the drug and development of adverse reactions during drug trial.
- Poor patient compliance & defaulters.
- Patient turned unwilling to continue in the course of clinical trial.
- Occurrence of any serious illness

INVESTIGATION:

The following investigations were done in all selected patients in the laboratory of Government Siddha Medical College, Palayamkottai.

BLOOD:

- Total WBC count
- Differential WBC count
- Erythrocyte sedimentation rate.
- Haemoglobin estimation
- Estimation of Blood sugar
- Estimation of Blood urea
- Estimation of serum cholesterol.

URINE:

- Albumin
- Sugar
- Deposit

RADIOLOGIVAL INVESTICATIONS:

- X-ray of both knee joint - ap view and lateral view

TREATMENT

Vellai ennai 15ml at early morning, in empty stomach with hot water. All the patients were treated with the following medicine.

- Kalinga Mathirai (Internal) 65mg (BD)
- Kodiveli thylam (External) 60ml, as external application
- Pattru as external theraphy.

All the patients were advised to follow the dietary regiment (or) pathiyam.

The Bio-chemical analysis was done in Biochemistry Department of Government Siddha Medical College and Pharmacological analysis was done in the pharmacological laboratory of kalasalingam university.

OBSERVATION AND RESULT

For the clinical study 40 patients were selected and treated in PG-III Sirappu Maruthuvam Department, Government Siddha Medical College and Hospital, Palayamkottai. Results were observed with respect to the following criteria.

1. Gender distribution
2. Age distribution
3. Kaalam
4. Occupation
5. Seasonal Variations
6. Thinai
7. Socio-economic status
8. Directory habits
9. Precipitating factors
10. Mode of onset
11. Duration of conditions
12. Clinical features
13. Conflict in Kanmathiriam
14. Disturbance in Vatham
15. Disturbance in Pitham
16. Disturbance in Kabam
17. Disturbance in Udal Kattugal
18. Envagai thervugal
19. Naadi
20. Neikuri
21. Assessment of results by the effect of conbined therapy.

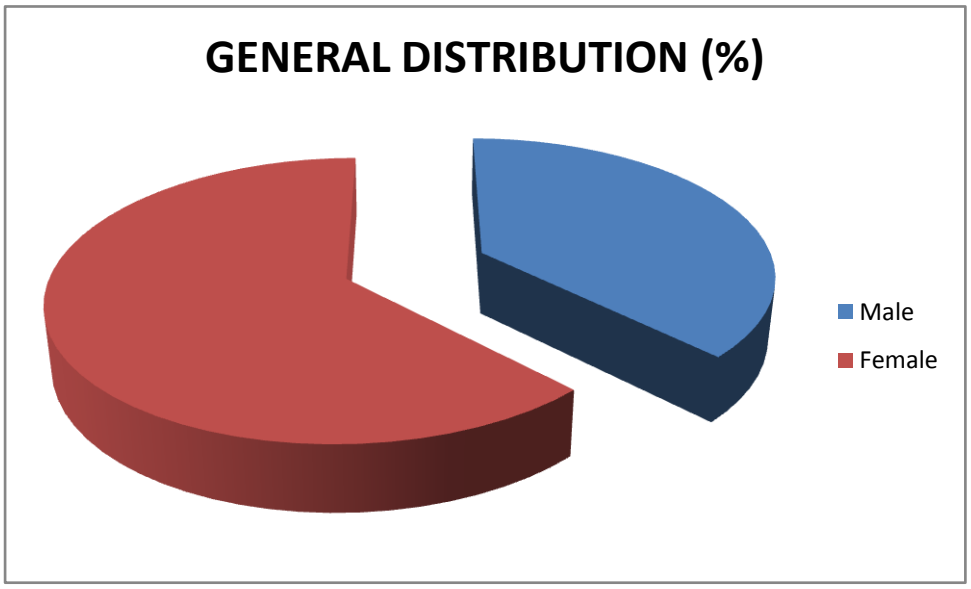
OBSERVATION AND RESULTS

1. GENERAL DISTRIBUTION

Table: 5.1

	Gender	No. of Cases	Percentage (%)
1	Male	15	37.5
2	Female	25	62.5
	Total	**40**	**100**

Fig: 5.1



Inference:

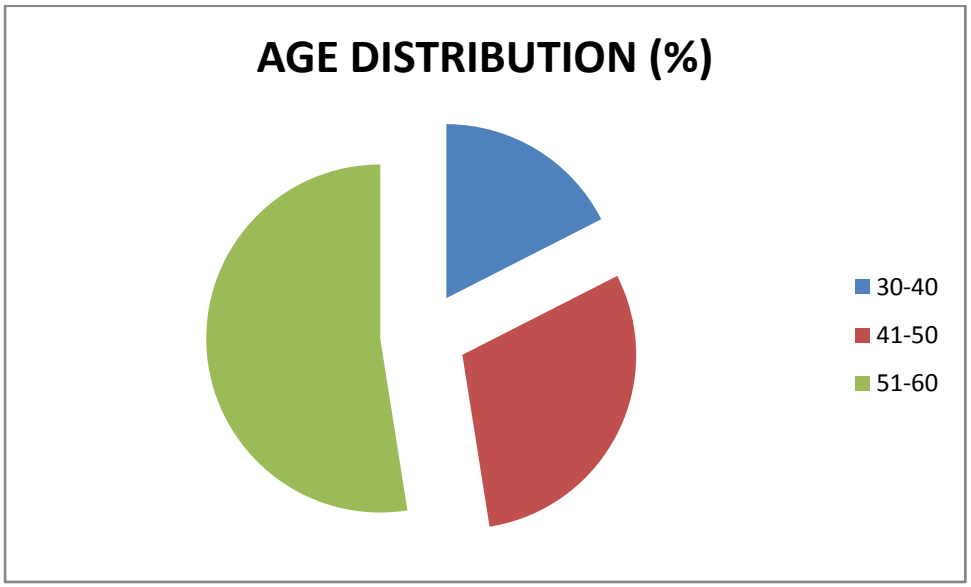
Among 40 patients selected for this study. 62.5% are female and 37.5% are male.

2. AGE DISTRIBUTION

Table:5.2

S.No.	Age Year	No. of Cases	Percentage (%)
1	30-40	7	17.5
2	41-50	12	30
3	**51-60**	**21**	**52.5**
	Total	**40**	**100**

Fig:5.2



Inference:

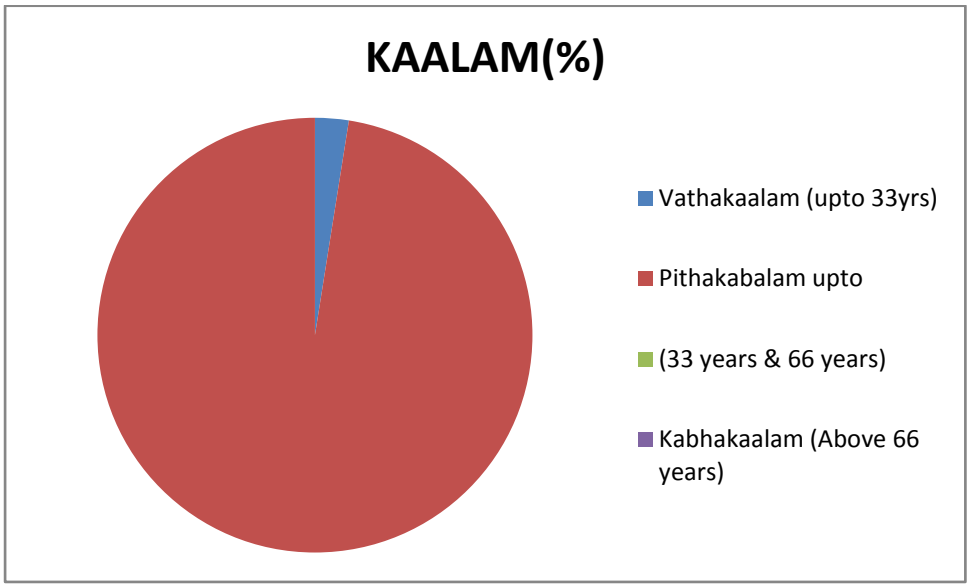
The prevalence of the diseases is found to be higher in the age group of 51-60 years.

3. KAALAM

Table:5.3

S.No.	Kaalam	No. of Cases	Percentage (%)
1	Vathakaalam (upto 33yrs)	1	2.5
2	Pithakaalam upto (33 years & 66 years)	39	97.5
3	Kabhakaalam (Above 66 years)	0	0
	TOTAL	**40**	**100**

Fig:5.3



Inference:

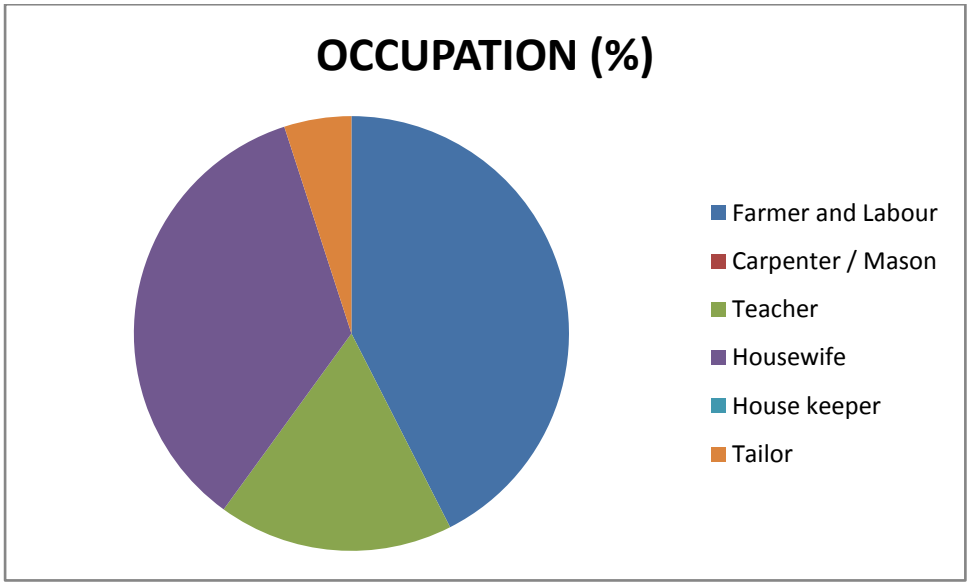
Out of 40 cases, 97.5% of cases were founded to be in pitha kaalam. 2.5% of cases were found to be in Vadha kaalam.

4. OCCUPATION

Table:5.4

S.No.	Occupation	No. of Cases	Percentage (%)
1	Farmer and Labour	17	42.5
2	Carpenter / Mason	0	0
3	Teacher	7	17.5
4	Housewife	14	35
5	House keeper	0	
6	Tailor	2	5
	Total	**40**	**100**

Fig: 5.4



Inference:

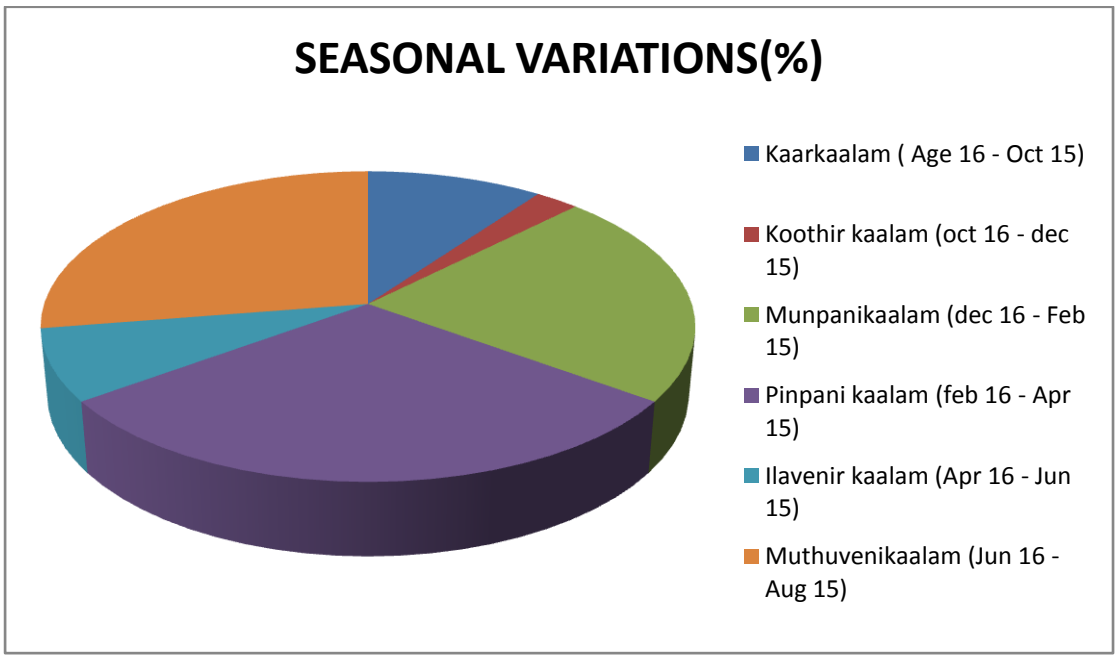
Out of 40 cases, in this study the rate of incidence is higher in occupational group which includes Farmers and Labour 42.5%, House wife 35% Teachers 17.5% and Tailor 5%.

5. SEASONAL VARIATIONS

Table 5.5

S.No.	Seasons	No. of Cases	Percentage (%)
1	Kaarkaalam (Age 16 - Oct 15)	4	10
2	Koothir kaalam (oct 16 - dec 15)	1	2.5
3	Munpanikaalam (dec 16 - Feb 15)	9	22.5
4	Pinpani kaalam (feb 16 - Apr 15)	12	30
5	Ilavenir kaalam (Apr 16 - Jun 15)	3	7.5
6	Muthuvenikaalam (Jun 16 - Aug 15)	11	27.5
	Total	**40**	**100**

Fig:5.5



Inference:

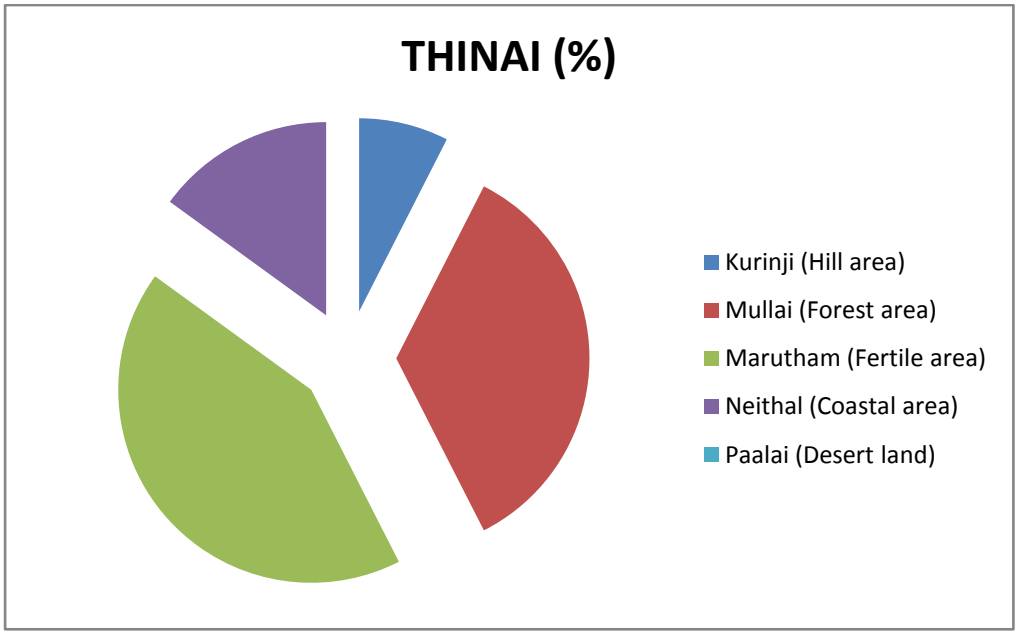
Out of 40 cases, 30 patients were admitted in Pinpani kaalam, 27.5% of patients were admitted in Muthuveni kaalam, 22.5% of patients were admitted in Munpanikalam, 10% of patients were admitted in Kaarkaalam, 7.5% of patients were admitted in Ilavenirkalam, 2.5% of patients were admitted in Koothirkalam.

6. THINAI

Table: 5.6

S.No.	Seasons	No. of Cases	Percentage (%)
1	Kurinji (Hill area)	3	7.5
2	Mullai (Forest area)	14	35
3	Marutham (Fertile area)	17	42.5
4	Neithal (Coastal area)	6	15
5	Paalai (Desert land)	0	0
	TOTAL	**40**	**100**

Fig: 5.6



Inference:

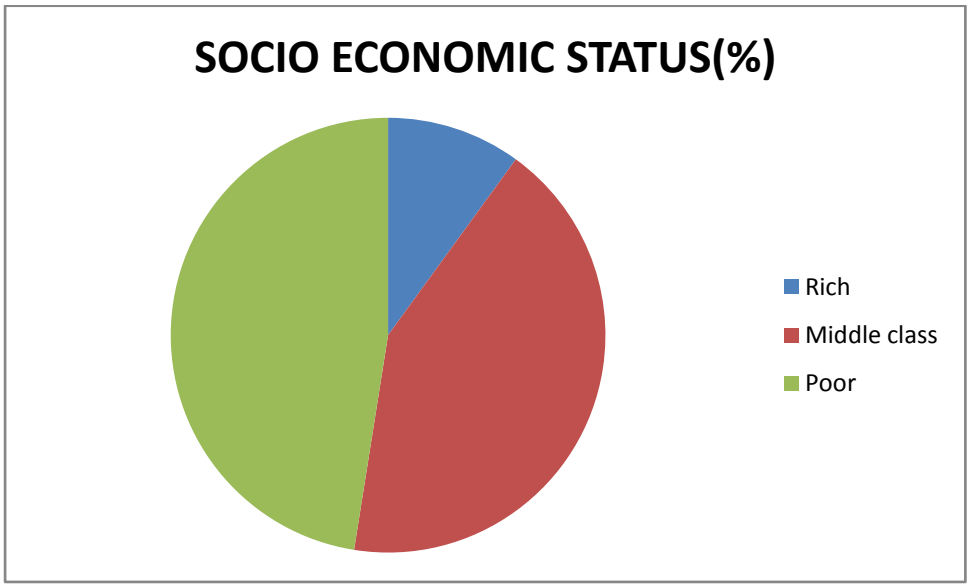
Among 40 cases, majority were from Marutha Nilam (42.5%)

7. SOCIO ECONOMIC STATUS

Table 5.7

S.No.	Class	No. of Cases	Percentage (%)
1	Rich	4	10
2	Middle class	17	42.5
3	Poor	19	47.5
	Total	**40**	**100**

Fig:5.7



Inference:

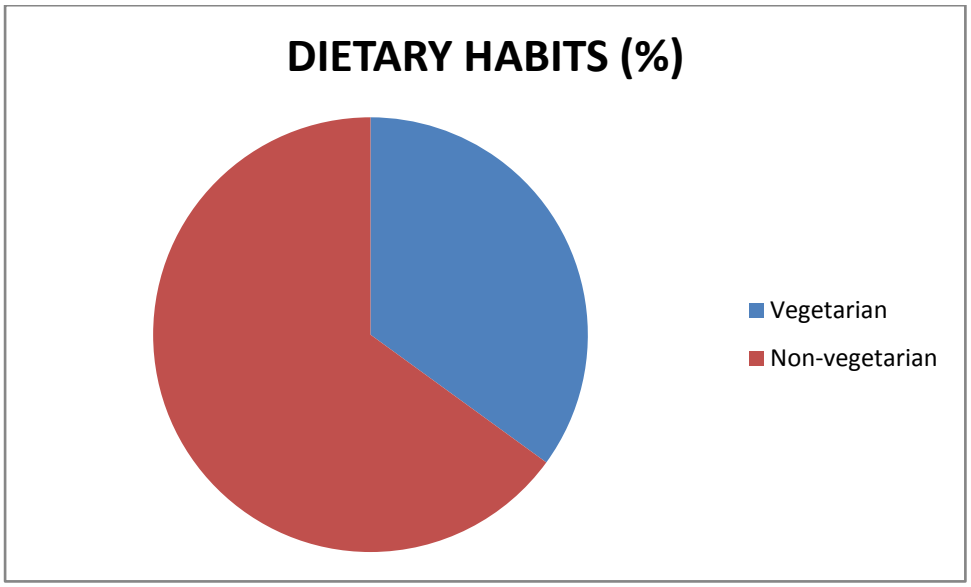
Out of 40 cases, 47.5% cases were from poor socio-economic status, 42.5% of cases from middle class and only 10% of cases from Rich background.

8. DIETARY HABITS

Table:5.8

S.No.	Dietary	No. of Cases	Percentage (%)
1	Vegetarian	14	35
2	Non-vegetarian	26	65
	TOTAL	**40**	**100**

Fig :5.8



Inference:

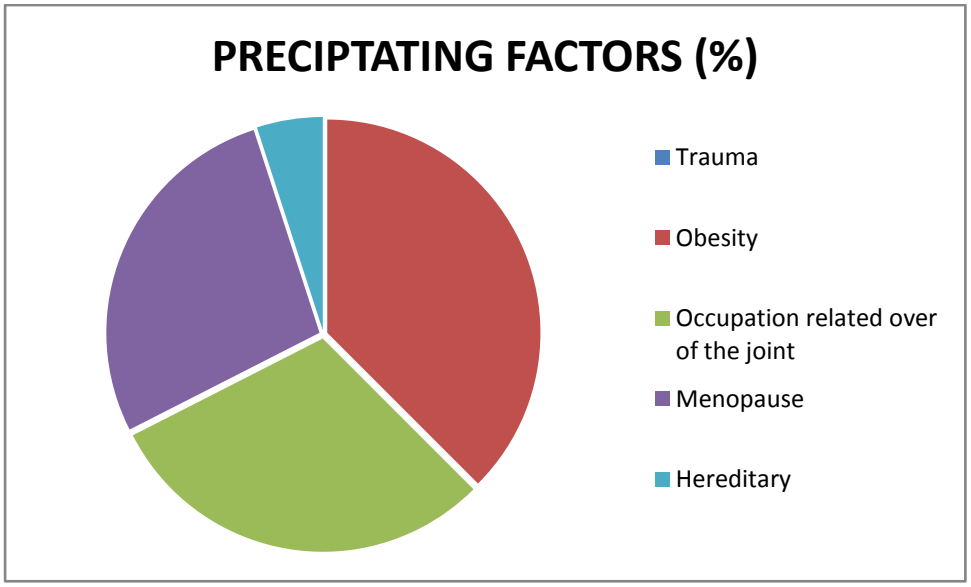
Most of the cases have non-vegetarian diet habit (65%)

9. PRECIPITATING FACTORS

Table 5.9

S.No.	Precipitating Factors	No. of Cases	Percentage (%)
1	Trauma	0	0
2	Obesity	15	37.5
3	Occupation related over of the joint	12	30
4	Menopause	11	27.5
5	Hereditary	2	5
	Total	**40**	**100**

Fig 5.9



Inference:

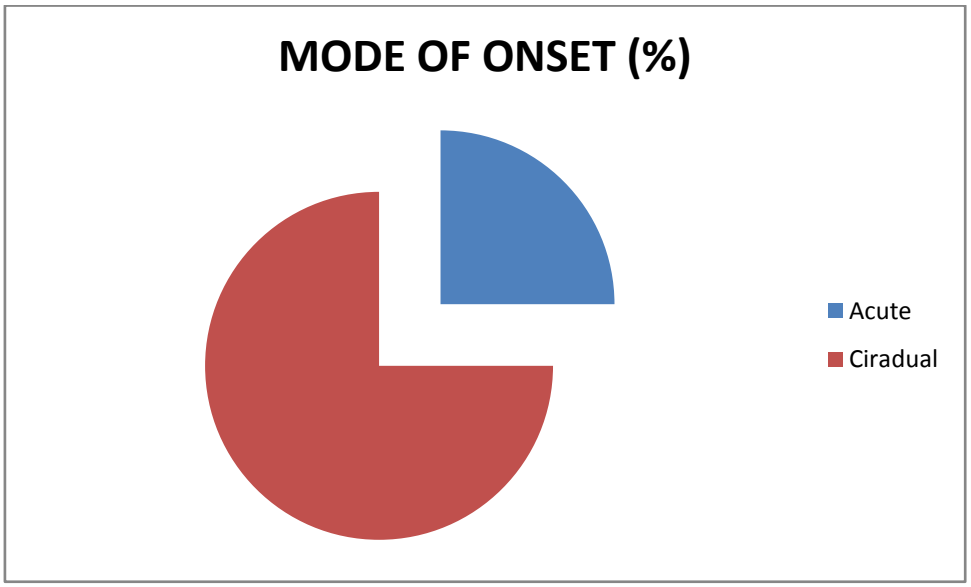
Among the 40 cases, 15 patients of them (37.5%) were obese, 12 patients of them (30%) had history of over use of the joint, 11 patients of them (27.5%) were in post menopausce stage, 2 patients of them (5%) were hereditary.

10. MODE OF ONSET:

Table 5.10

S.No.	Mode of Onset	No. of Cases	Percentage (%)
1	Acute	10	25
2	Gradual	30	75
	Total	**40**	**100**

Fig 5.11



Inference:

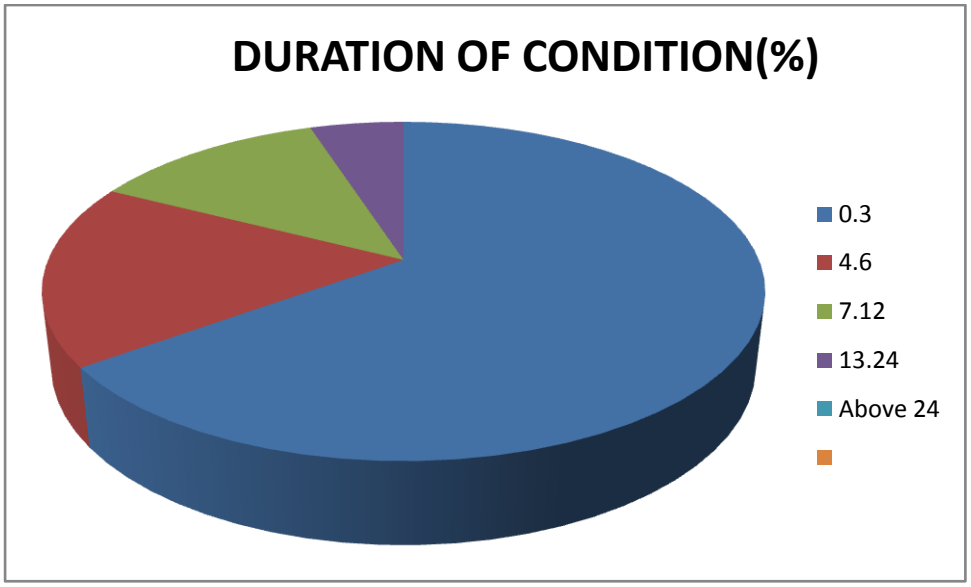
According to this study 75% of the cases were reported gradual onset of disease.

11. DURATION OF CONDITIONS:

Table 5.11

S.No.	Duration (Months)	No. of Cases	Percentage (%)
1	0-3	26	65
2	4-6	7	17.5
3	7-12	5	12.5
4	13-24	2	5
5	Above 24	0	0
	TOTAL	40	100

Fig 5.11



Inference:

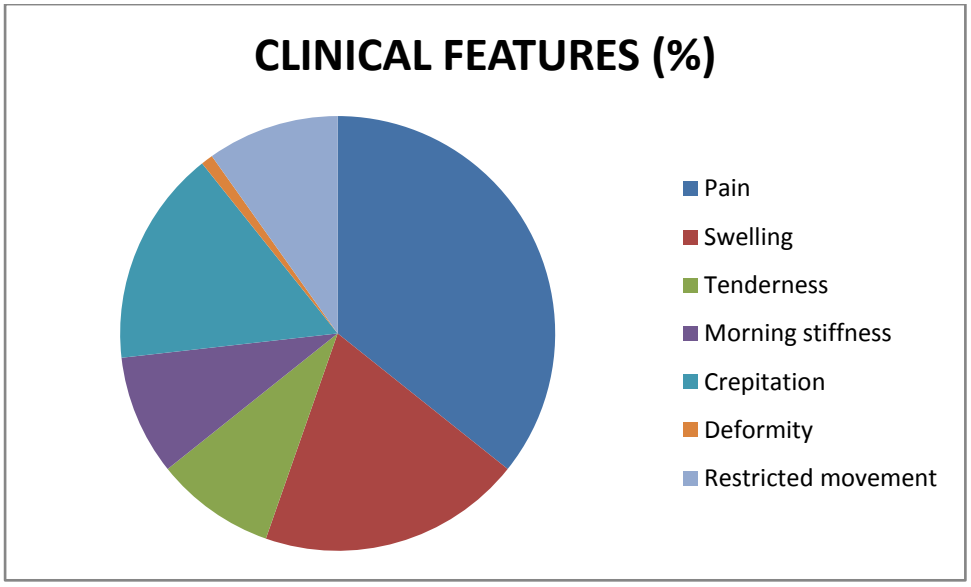
Among the 40 cases, 26 cases (65%) were come under 0-3 months, 7 cases (17.5%) were come under 4-6 months, 5 cases (12.5%) were come under 7-12 months, 2 cases (5%) were come under 13-24 months.

12. CLINICAL FEATURES:

Table:5.12

S.No.	Duration (Months)	No. of Cases	Percentage (%)
1	Pain	40	100
2	Swelling	22	55
3	Tenderness	10	25
4	Morning stiffness	10	25
5	Crepitation	18	45
6	Deformity	1	2.5
7	Restricted movement	11	27.5

Fig:5.12



Inference:

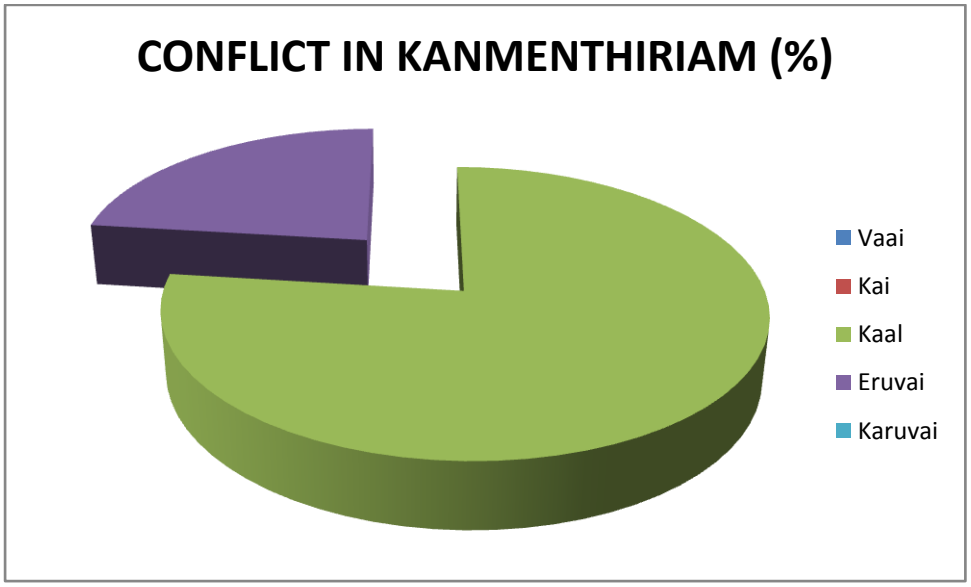
Pain were found in all 40 cases (100%)
Swelling found in 22 cases (55%)
Crepitation were found in 18 cases (45%)
Restricted movement present in 11 cases (27.5%)
Tenderness were found in 10 cases (25%)
Morning stiffness was found in 10 cases (25%)
Deformity present in 1 case (2.5%)

13. CONFLICT IN KANMENTHIRIAM:

Table 5.12

S.No.	Kanmenthiriam	No. of Cases	Percentage (%)
1	Vaai	0	0
2	Kai	0	0
3	Kaal	40	100
4	Eruvai	12	30
5	Karuvai	0	0
	TOTAL	**40**	**100**

Fig:5.12



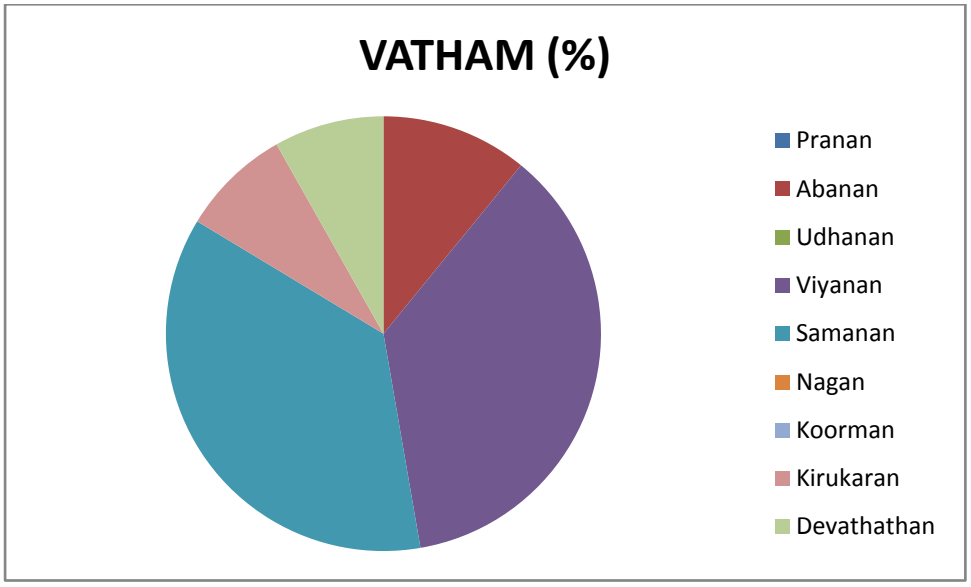
Inference:

Among all the Kanmenthiriam (Vaai, Kai, Kaal, Kruvai, Karuvai) Kaal was affected in all 40 cases (100%) and Eruvai was affected in 12 cases (30%)

14: TABLE SHOWING THE DISTURBANCES IN VATHAM:

S.No.	Vatham	No. of Cases	Percentage (%)
1	Pranan	0	0
2	Abanan	12	30
3	Udhanan	0	0
4	Viyanan	40	100
5	Samanan	40	100
6	Nagan	0	0
7	Koorman	0	0
8	Kirukaran	9	22.5
9	Devathathan	9	22.5
10	Dhananjeyan	0	0

Fig:5.14



Inferences:

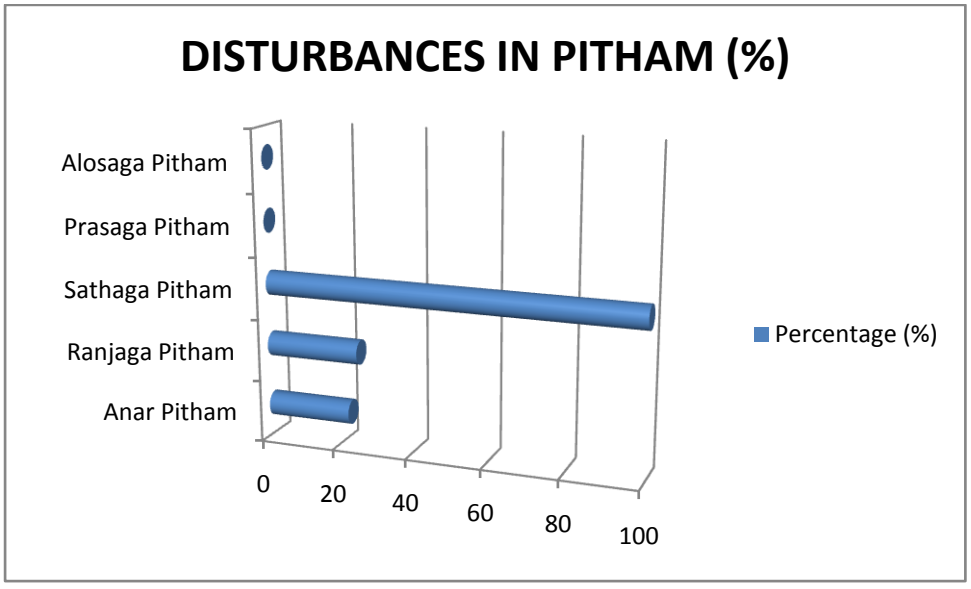
Viyanan and Samanan were affected in all the 40 cases (100%) Abanan were affected in 12 cases (0%) Kirukaran and Devathathan affected in 9 cases (22.5%)

15.DISTURBANCES IN PITHAM

Table:5.15

S.No.	Duration (Months)	No. of Cases	Percentage (%)
1	Anar Pitham	9	22.5
2	Ranjaga Pitham	10	25
3	Sathaga Pitham	40	100
4	Prasaga Pitham	0	0
5	Alosaga Pitham	0	0

Fig:5.16



Inference:

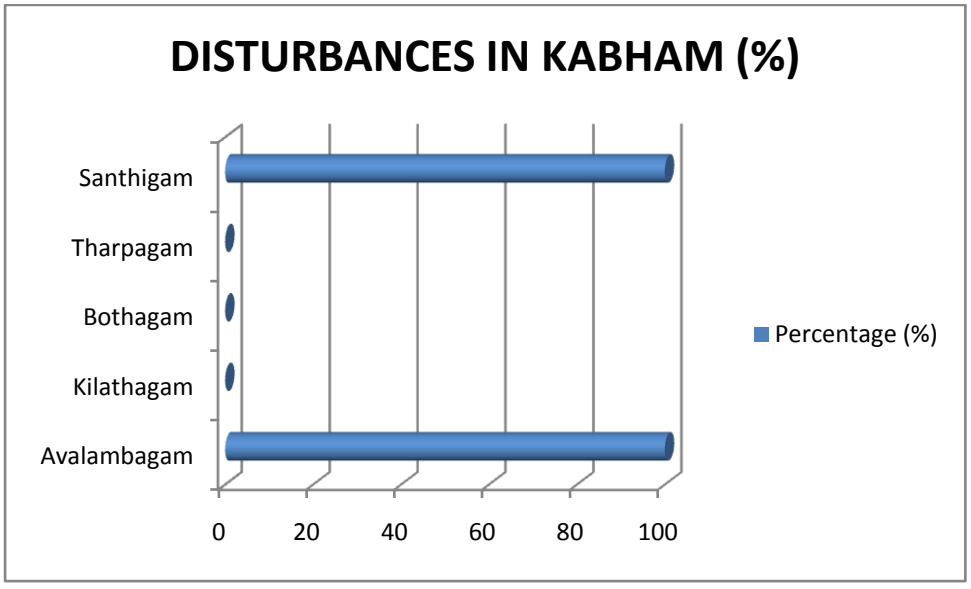
Sathga Pitham was affected in all the 40 cases (100%) Ranjaga pitham was affected in 10 cases (25%), Anarpitham was affected in 9 cases (22.5%)

16 DISTURBANCE OF KABAM:

Table:5.16

S.No.	Duration (Months)	No. of Cases	Percentage (%)
1	Avalambagam	40	100
2	Kilathagam	0	0
3	Bothagam	0	0
4	Tharpagam	0	0
5	Santhigam	40	100

Fig:5.16



Inference:

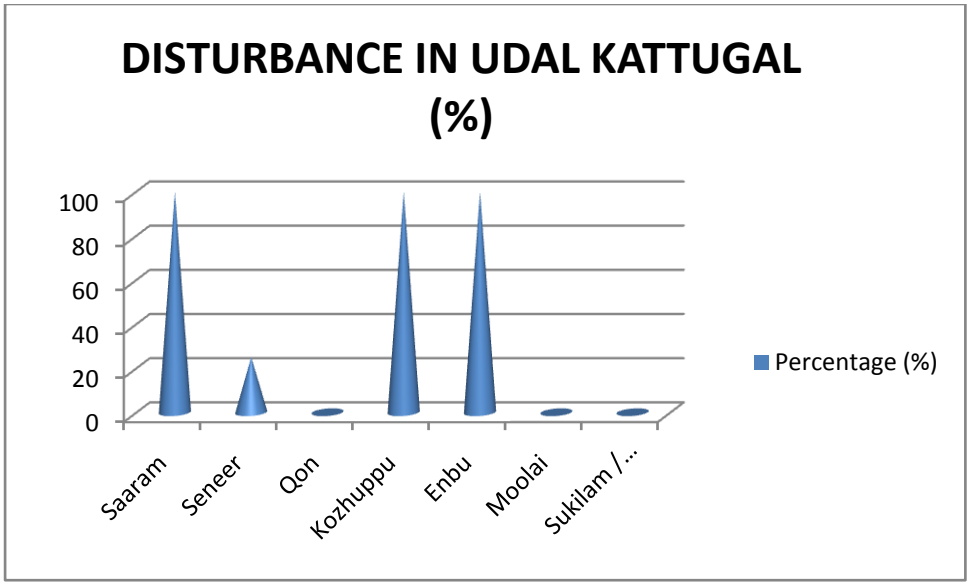
Among all Santhigam and Avalambagam was affected in all 40 cases (100%)

17.DISTURBANCE IN UDAL KATTUGAL:

Table 5.17

S.No.	Udal Kattugal	No. of cases	Percentage (%)
1	Saaram	40	100
2	Seneer	10	25
3	Oon	0	0
4	Kozhuppu	40	100
5	Enbu	40	100
6	Moolai	0	0
7	Sukilam / Surondidham	0	0

Fig: 5.17



Inference:

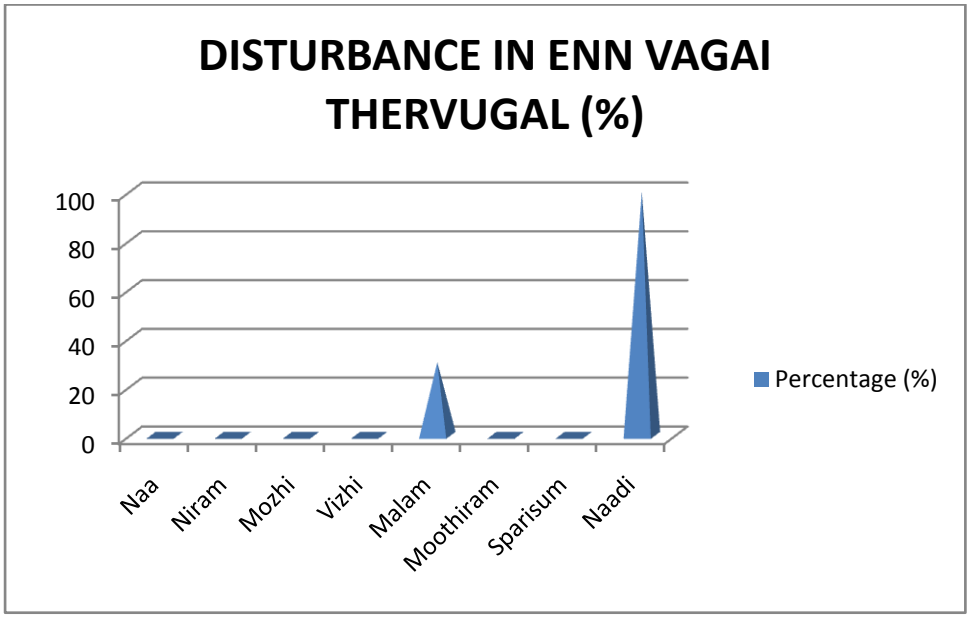
It was diagnosed, during the study that among the seven udalkattukal, Saaram, Kozhuppu, Enbu were affected in 40 cases (100%) and Seneer is affected in 10 cases (25%)

18.DISTURBANCE IN ENVAGAI THERVUGAL:

Table 5.18

S.No.	Envagai Thervugal	No. of Cases	Percentage (%)
1	Naa	0	0
2	Niram	0	0
3	Mozhi	0	0
4	Vizhi	0	0
5	Malam	12	30
6	Moothiram	0	0
7	Sparisum	0	0
8	Naadi	40	100

Fig 5.18



Inference:

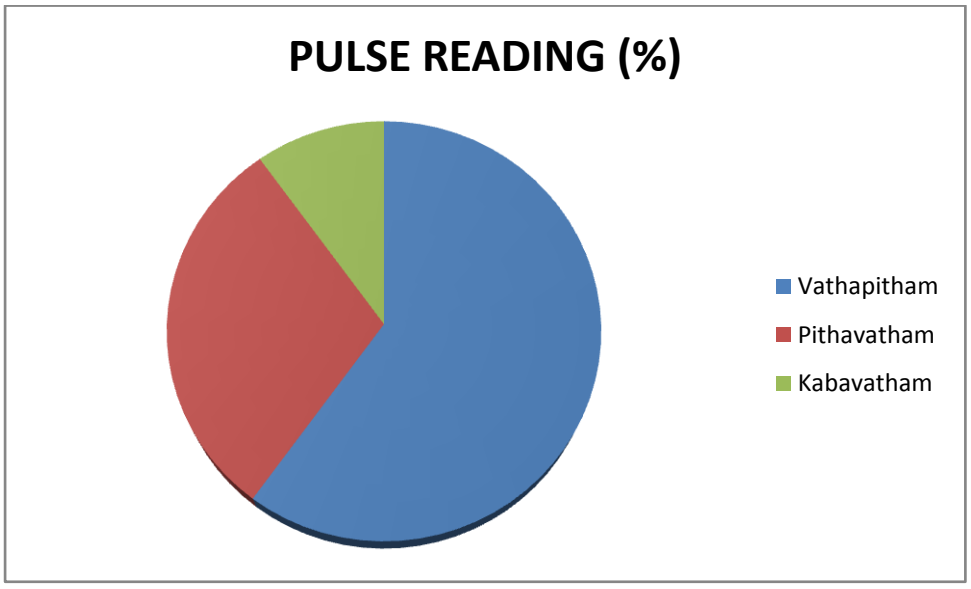
It was learnt during the study that Naadi was noted in all 40 cases (100%) Malam was affected in 12 cases (30%)

19.PULSE READING (NAADI)

Table 5.19

S.No.	Parameters	No. of Cases	Percentage (%)
1	Vathapitham	24	60
2	Pithavatham	12	30
3	Kabavatham	4	10

Fig 5.19



Inference:

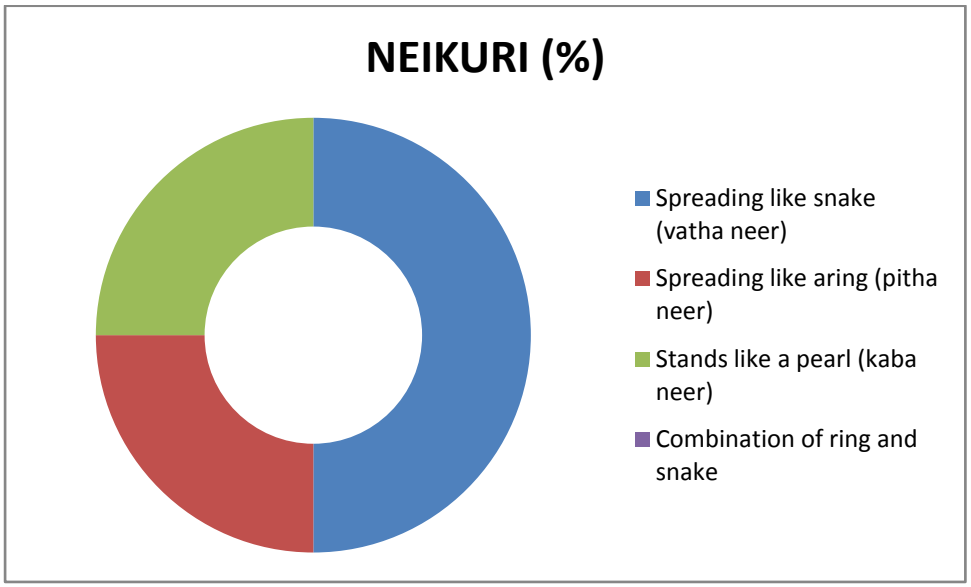
As mentioned above naadi was noted in all cases and among that 24 cases (60%) were vathapitham, 12 cases (30%) were pithavatham, and remaining 3 cases (4%) were kabavatha naadi.

20 NEIKURI

Table 5.20

S.No.	Inference	No. of Cases	Percentage (%)
1	Spreading like snake (vatha neer)	20	50
2	Spreading like aring (pitha neer)	10	25
3	Stands like a pearl (kaba neer)	10	25
4	Combination of ring and snake	0	0

Fig 5.20



Inference:

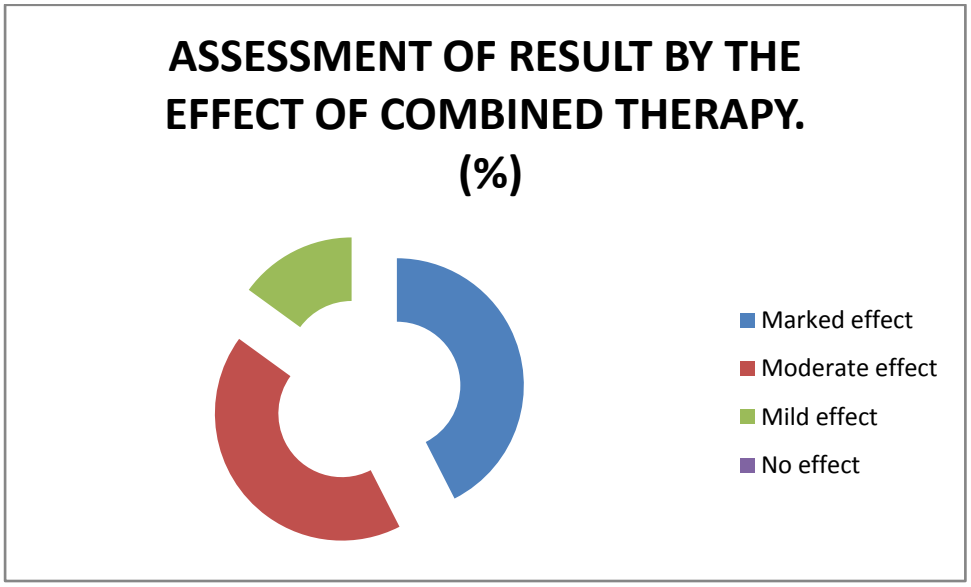
In Neikuri analysis, 50% of the cases presented with Vatha neer, 25% with pithaneer 25% with kaba neer.

21:ASSESSMENT OF RESULT BY THE EFFECT OF COMBINED THERAPY

Table 5.21

S.No.	Effect of therapy	No of patients	Percentage (%)
1	Marked effect	17	42.5
2	Moderate effect	17	42.5
3	Mild effect	6	15
4	No effect	0	0

Fig 5.21



Inference:

Thus from the analysis of the data collected during the course of treatment and at the end of treatment it is inferred that the overall effect of the therapy. Internal, external and complementary. Marked effect of 42.5% moderate effect of 17.5% and mild effect of 15%

Measurement of the Knee Joint

S. No.	Patient Name	Age / Sex	OP / Ip No.	Before Treatment		After Treatment	
				Right (cm)	Left (cm)	Right (cm)	Left (cm)
1	Seetha	41/F	21791	32	35	30	33
2	Alipathima	40/F	36234	38	40	35	36
3	Sudalai Vadivu	57/F	1815	33	37	30	33
4	Perumail	60/F	107	37	36	33	30
5	Sivagami	55/F	25557	41	39	39	37
6	Chandira	35/F	3127	34	33	32	32
7	Murugan	52/M	23662	39	38	35	35
8	Maryammal	59/F	17226	31	33	26	28
9	Vijaya	43/F	2261	33	32	29	30
10	Malaiyandi	55/M	2892	39	36	35	34
11	Annamiyail	40/F	111	30	32	28	30
12	Chellammal	60/F	394	36	35	32	31
13	Nagarajan	60/M	417	41	39	38	37
14	Gomathi	56/F	2195	83	30	31.5	28
15	Lakshmi	33/F	21961	33	32	29	30
16	Maryammal	60/F	2320	40	39	35	34
17	Pathrakali	60/F	1778	37	36	33	32
18	Narayanasamy	57/M	1592	40	38	38	35.5
19	Aarumugam	50/F	293	32	37	30	34
20	Sankaran	60/M	2091	35	33	31	30
21	Velammal	55/F	2190	41	39	38	37
22	Perumail	60/M	415	35	32	32	30

INFERENCE: Knee joint Swelling is reduced approximately 2-3cms after treatment.

CASE PRESENTATION - SUMMARY OF OUR PATIENTS

1. KALINGA MATHIRAI - INTERAL **2. KODIVELI THYLAM- EXTERNAL**

S. NO.	OP. NO.	NAME	AGE / SET	OCCUPATION	DATE OF REGISTRATION	DATE OF COMPLETION OF TREATMENT	NO. OF DAYS TREATED	RESULT
1	2261	Vijaya	43/F	TEACHER	4.6.2018	07.07.2018	34	MODERATE
2	50047	Rubi	48/F	TAILOR	12.06.2018	29.07.2018	45	MARKED
3	36234	Alipathima	40/F	TEACHER	02.07.2018	15.08.2018	45	MODERATE
4	25626	Muthulingam	57/M	FARMER	07.07.2018	08.08.2018	33	MARKED
5	2892	Malaiyandi	55/M	FARMER	25.07.2018	18.08.2018	25	MILD
6	23679	Murugan	45/M	FARMER	04.02.2019	22.03.2019	47	MARKED
7	23779	Valli	40/F	HOUSE WIFE	06.02.2019	20.03.2019	43	MODERATE
8	23648	Chellammal	50/F	HOUSE WIFE	07.02.2019	16.03.2019	48	MODERATE
9	16924	Baliya	50/M	FARMER	15.02.2019	22.03.2018	36	MARKED
10	17059	Meenachi	38/F	HOUSE WIFE	15.02.2019	29.03.2019	43	MODERATE
11	17226	Mariyammal	59/F	HOUSE WIFE	15.02.2019	28.03.2019	42	MODERATE
12	21791	Seetha	41/F	HOUSE WIFE	01.03.2019	13.04.2019	44	MODERATE
13	21961	Lakshmi	33/F	TAILOR	01.03.2019	18.04.2019	49	MILD
14	21980	Sivarajan	46/M	FARMER	01.03.2019	14.04.2019	45	MARKED
15	23661	Selvi	46/F	HOUSE WIFE	07.03.2019	22.04.2019	47	MILD
16	23662	Murugan	52/M	FARMER	07.03.2019	16.04.2019	41	MODERATE
17	23663	Aarumugam	51/M	FARMER	07.03.2019	12.04.2019	37	MARKED
18	23370	Saaji muthu	60/M	TEACHER	13.03.2019	22.04.2019	40	MODERATE
19	25557	Sivagami	55/F	HOUSE WIFE	13.03.2019	20.04.2019	38	MARKED
20	26678	Muthuvelii	43/F	TEACHER	16.03.2019	23.04.2019	38	MARKED

LIST OF IN PATIENTS OF PG III SIRAPPU MARUTHUVAM DEPARTMENT

1. KALINGA MATHIRAI - INTERNAL **2. KODIVELI THYLAM - EXTERNAL**

S.NO.	IP.NO.	NAME	AGE / SET	OCCUPATION	DATE OF ADMISSION	DATE OF DISCHARGE	NO. OF DAYS TREATED		TOTAL NO OF DAYS	RESULT
							IP	OP		
1	1898	M.RANI	60/F	FARMER	04.06.2018	29.06.2018	26	20	46	MILD
2	1598	NARAYANA SAMY	57/F	FARMER	20.06.2018	31.08.2018	51	0	51	MODERATE
3	1778	PATHIRA KALI	60/F	HOUSE WIFE	12.07.2018	16.08.2018	37	11	48	MARKED
4	1815	SUDALAI VADIVOO	57/F	FARMER	17.07.2018	27.08.2018	42	6	48	MODERATE
5	2020	SELVI	38/F	HOUSE WIFE	06.08.2018	11.09.2018	37	11	48	MARKED
6	2032	AARUMUGASAMY	47/F	FARMER	07.08.2018	03.09.2018	29	19	48	MILD
7	2091	SANKARAN	60/M	FARMER	16.08.2018	03.09.2018	19	31	50	MILD
8	2190	VELAMMAL	55/F	HOUSE WIFE	27.08.2018	27.09.2018	32	16	48	MARKED
9	2195	GOMATHI	56/F	TEACHER	27.08.2018	27.09.2018	32	16	48	MARKED
10	2320	MARIYAMMAL	60/F	HOUSE WIFE	11.09.2018	16.10.2018	36	13	49	MODERATE
11	3036	DEVAPAIL	60/M	FARMER	11.12.2018	01.01.2019	22	26	48	MARKED
12	3127	CHANDIRA	35/F	HOUSE WIFE	22.12.2018	15.01.2019	25	23	48	MARKED
13	107	PERUMAIL	60/F	FARMER	21.01.2019	13.02.2019	24	24	48	MARKED
14	111	ANAMERIYAL	40/F	HOUSE WIFE	21.01.2019	23.02.2019	34	15	49	MODERATE
15	293	AARUMUGAM	50/F	FARMER	08.02.2019	07.03.2019	28	20	48	MODERATE
16	394	CHELLAMAL	60/F	HOUSE WIFE	18.02.2019	25.03.2019	36	15	50	MODERATE
17	415	PERUMAIL	60/M	FARMER	19.02.2019	19.03.2019	29	19	48	MARKED
18	417	NAGARAJAN	60/M	FARMER	19.02.2019	19.03.2019	29	19	48	MARKED
19	435	KERUSTI	60/F	HOUSE WIFE	20.02.2019	27.03.2019	36	13	48	MODERATE
20	464	AARUMUGAM	48/F	TEACHER	23.02.2019	29.03.2019	35	14	48	MODERATE

BLOOD INVESTIGATION BEFORE AND AFTER TREATEMENT - OP PATIENT

		TC		DC										HB		ESR		BLOOD SUGAR				UREA		SERUM CHOLOTER	
S.NO.	OP.NO.	BT	AT	ST	AT	BT	AT	BT	AT	BT	AT	BT	AT	BT	AT	BT	AT	F		PP					
				N		L		E		B		M						BT	AT	BT	AT	BT	AT	BT	AT
1	2261	6300	6900	66	60	33	34	1	1	0	0	0	0	101	12	22	12	76	78	120	110	34	30	150	146
2	50047	7000	7100	59	55	37	36	4	4	0	0	0	0	9	10.2	25	15	80	82	130	126	24	26	185	170
3	36837	6800	7000	68	45	29	30	3	3	0	0	0	0	12	11.3	34	20	86	88	126	130	26	24	250	230
4	25626	6200	6500	59	50	36	37	5	4	0	0	0	0	13	13.1	18	10	98	49	128	120	30	26	205	200
5	2892	7800	8000	63	60	35	33	2	3	0	0	0	0	11.9	12	15	8	88	85	120	160	32	30	170	160
6	23679	8200	7500	71	60	24	30	5	4	0	0	0	0	12.2	12.1	26	16	86	90	123	138	36	32	159	160
7	23779	6900	6700	61	53	34	29	5	3	0	0	0	0	10.5	11.5	28	20	79	77	132	120	38	36	199	200
8	23648	7300	7100	59	55	36	32	5	3	0	0	0	0	12.4	11.2	11	8	90	88	110	100	36	35	194	180
9	16924	8200	8000	68	68	29	25	3	4	0	0	0	0	13.6	13	15	10	88	85	115	120	29	32	139	150
10	17059	6700	6900	60	61	26	24	14	6	0	0	0	0	10.1	11.5	31	22	80	75	100	110	28	29	179	180
11	17226	7700	7700	60	52	33	30	7	4	0	0	0	0	12.5	12.5	18	14	50	70	90	100	40	35	240	220
12	21791	7500	8100	60	51	30	28	10	6	0	0	0	0	9.5	11	19	10	79	77	90	95	23	25	232	220
13	21961	8800	8900	59	54	37	35	4	4	0	0	0	0	12.2	13.5	26	12	87	83	107	110	28	27	159	130
14	21980	7300	7500	63	60	24	22	13	4	0	0	0	0	11.9	12	36	20	80	82	100	105	36	32	208	210
15	23661	9200	9100	59	45	36	34	5	3	0	0	0	0	10	11.3	28	14	87	90	97	110	29	33	159	140
16	23662	6700	6900	64	43	33	25	3	2	0	0	0	0	11.1	11.2	16	8	83	87	100	110	19	27	221	210
17	23643	7300	7100	60	57	35	29	5	1	0	0	0	0	18.2	12.5	10	10	82	90	110	120	20	23	185	180
18	23376	8000	8200	59	51	36	30	5	1	0	0	0	0	13	13	32	16	83	87	100	110	21	22	179	160
19	25557	6700	6900	65	60	25	23	10	4	0	0	0	0	9.6	10.5	34	20	99	98	105	100	26	27	160	150
20	26678	9200	900	60	58	33	35	7	5	0	0	0	0	12.2	12.5	16	14	87	90	110	100	30	29	200	196

BLOOD INVESTIGATION BEFORE AND AFTER TREATMENT - IP PATIENT

S.NO.	OP.NO.	TC		DC										HB		ESR		BLOOD SUGAR				UREA		SERUM CHOLOTER	
		BT	AT	N		L		E		B		M		BT	AT	BT	AT	F		PP					
				BT	AT	BT	AT	BT	AT	BT	AT	BT	AT					BT	AT	BT	AT	BT	AT	BT	AT
1	1898	6900	7000	64	60	29	30	7	4	0	0	0	0	41.5	12	12	10	82	80	120	10	28	23	240	222
2	1598	6700	6500	70	58	25	26	5	4	0	0	0	0	10	11.2	29	12	76	15	100	105	36	33	170	173
3	1778	6800	6900	55	52	35	30	10	3	0	0	0	0	13	13.1	30	15	88	89	110	105	40	35	183	180
4	1815	7700	8200	64	60	30	31	6	2	0	0	0	0	9.6	10.5	16	15	90	84	130	125	23	22	150	133
5	2020	7200	7500	60	60	24	26	16	5	0	0	0	0	12.1	12.3	18	16	80	87	120	124	36	35	194	173
6	2032	8000	7900	64	59	32	30	4	3	0	0	0	0	12	11.5	20	18	60	69	115	116	29	32	176	173
7	2091	8100	8500	65	55	25	26	10	2	0	0	0	0	10.9	11	14	13	67	70	97	100	19	22	159	160
8	2190	9200	9500	71	60	24	20	5	1	0	0	0	0	11.2	12	9	10	65	90	96	106	21	23	208	194
9	2195	7000	7300	65	58	30	26	5	1	0	0	0	0	8	10	10	12	89	90	120	116	26	24	201	210
10	2320	9800	9900	70	60	20	21	10	4	0	0	0	0	11.5	12	12	10	87	89	118	120	30	25	179	160
11	3036	6700	7000	60	60	30	32	10	4	0	0	0	0	12.8	12.5	15	14	99	74	140	135	32	31	160	140
12	3127	19000	9800	50	49	40	36	10	3	0	0	0	0	13.2	13.7	17	15	87	89	130	120	26	25	240	233
13	107	8000	8100	62	60	32	30	6	2	0	0	0	0	12.7	12.8	18	10	76	79	132	133	34	32	165	157
14	111	9200	9400	60	62	37	35	3	1	0	0	0	0	7.5	9.8	16	12	79	80	124	116	24	24	160	165
15	293	6200	6400	65	59	30	40	5	4	0	0	0	0	12.2	13	19	16	85	86	125	122	32	31	203	200
16	394	6500	6300	64	59	29	30	7	3	0	0	0	0	12.1	12	15	14	70	78	110	103	38	30	146	143
17	415	6700	6900	60	60	29	25	11	5	0	0	0	0	13.2	13.5	9	10	82	86	133	124	40	32	160	154
18	417	8200	8300	62	60	28	29	10	2	0	0	0	0	10.2		10	12	87	89	126	128	29	25	200	205
19	435	7700	7800	70	60	25	27	5	5	0	0	0	0	11	11.5	13	16	73	78	105	110	24	23	221	210
20	464	6800	6900	60	59	34	40	16	5	0	0	0	0	9	11	16	14	76	79	116	120	29	26	180	174

URINE EXAMINATION BEFORE & AFTER TREATMENT - OUT PATIENTS

S.NO.	OP.NO.	BEFORE TREATMENT			AFTER TREATMENT		
		ALBUMIN	SUGAR	DEPOSIT	ALBUMIN	SUGAR	DEPOSIT
1	2261	NIL	NIL	NIL	NIL	NIL	NIL
2	50047	NIL	NIL	NIL	NIL	NIL	NIL
3	36234	NIL	NIL	NIL	NIL	NIL	NIL
4	25626	NIL	NIL	NIL	NIL	NIL	NIL
5	2892	NIL	NIL	NIL	NIL	NIL	NIL
6	23679	NIL	NIL	NIL	NIL	NIL	NIL
7	23779	NIL	NIL	NIL	NIL	NIL	NIL
8	23648	NIL	NIL	NIL	NIL	NIL	NIL
9	16924	NIL	NIL	1-2 BUS CELLS	NIL	NIL	NIL
10	17059	NIL	NIL	NIL	NIL	NIL	NIL
11	17226	TRACE	NIL	NIL	NIL	NIL	NIL
12	21791	NIL	NIL	NIL	NIL	NIL	NIL
13	21961	NIL	NIL	NIL	NIL	NIL	NIL
14	21980	NIL	NIL	NIL	NIL	NIL	NIL
15	23661	NIL	NIL	NIL	NIL	NIL	NIL
16	23662	NIL	NIL	NIL	NIL	NIL	NIL
17	23663	NIL	NIL	3-6 PUS CELLS	NIL	NIL	NIL
18	23370	NIL	NIL	NIL	NIL	NIL	NIL
19	25557	NIL	NIL	NIL	NIL	NIL	NIL
20	26678	NIL	NIL	1-2 PUS CELLS	NIL	NIL	NIL

URINE EXAMINATION BEFORE & AFTER TREATMENT - IN PATIENTS

S.NO.	IP.NO.	BEFORE TREATMENT			AFTER TREATMENT		
		ALBUMIN	SUGAR	DEPOSIT	ALBUMIN	SUGAR	DEPOSIT
1	1898	NIL	NIL	4-6 PUSCELLS	NIL	NIL	1-2 DEPOSITS
2	1598	NIL	NIL	NIL	NIL	NIL	NIL
3	1778	NIL	NIL	NIL	NIL	NIL	NIL
4	1875	NIL	NIL	NIL	NIL	NIL	NIL
5	2020	NIL	NIL	NIL	NIL	NIL	NIL
6	2032	NIL	NIL	NIL	NIL	NIL	NIL
7	2091	NIL	NIL	NIL	NIL	NIL	1-2 PUS CELLS
8	2190	NIL	NIL	3-6 PUS CELLS	NIL	NIL	NIL
9	2195	NIL	NIL	NIL	NIL	NIL	NIL
10	2320	TRACE	NIL	TRACE NIL	TRACE	NIL	NIL
11	3036	NIL	NIL	NIL	NIL	NIL	NIL
12	3127	NIL	NIL	NIL	NIL	NIL	NIL
13	107	NIL	NIL	NIL	NIL	NIL	NIL
14	111	NIL	NIL	NIL	NIL	NIL	NIL
15	293	NIL	NIL	NIL	NIL	NIL	NIL
16	394	NIL	NIL	NIL	NIL	NIL	NIL
17	415	NIL	NIL	NIL	NIL	NIL	NIL
18	417	NIL	NIL	NIL	NIL	NIL	NIL
19	435	TRACE	NIL	NIL	TRACE	NIL	NIL
20	464	NIL	NIL	NIL	NIL	NIL	NIL

DISCUSSION

Osteoarthritis is a chronic disorder of synovial joints in which there is progressive softening and disintegration of articular Cartilege and bone at the joint margins (Osteophytes) cyst formation and subchondral sclerosis, mild synovitis and capsular fibrosis.

Classified as:

- Primary (Localized or generalized)
- Secondary (Traumatic, congenital, Metabolic)
- Characterized by focal and progressive loss of hyaline cartilage of joint.

Symptoms:

- Pain
- Swelling
- Cripitus
- Stiffness

The trial drug given below was used in treating the disease azhal keel vaye the trial drug are.

KALINGA MATIRAI - INTERNAL

KODIVELI THYLAM - EXTERNAL

The clinical approval was done as per the protocol and the data were collected by using approved forms. The disease Azhal Keel Vayu (Osteoarthritis of knee joint) was considered under various criteria to gather the secondary objectives of the study and the result were observed and tabulated. A variety of criteria and the result were discussed here under.

Gender Distribution:

From the above tabulation. Among the 40 patients selected,62.5% were female, and 37.5% were female.

Age distribution:

Among the 40 patients selected this study shows high incidence of Azhal Keel Vayu (asteoarthritis of knee joint) was in above 51-60years (52.5%) of age, Azhal

Keel Vayu which is compared with osteoarthritis of knee joint which is degenerative disease, so the above interference explained it's significant as the age plays an important role upon the degenerative disease.

Kaalam Distribution:

From the above mentioned tabulation, Among the 40 patients selected in this study, its shows the higher incidence was initiated to be pitha kaalam (97.5%).

Occupational Status:

In this study, the rate of incidence is higher in occupational group which includes farmers and labours (42.5%) House wifes (35%) Teachers (17.5%) and Tailors (5%). This study shows heavy work farmets and Labours are mostly affected.

Seasonal variations:

From the above mentioned tabulation 27.5% of patients were admitted in Muthuvenil kaalam, 22.5% of patients were admitted in munpanikaalam, 10% of patients were admitted in karkalam, 7.5% patients were admitted in ilavenir kaalam 25% of patients were admitted in koothirkulam. Mostly the patients were admitted in Muthuvenil kaalam.

Thinai

From the above mentioned tabulation 17 cases (42.5%) were from maratham, 14 cases (35%) were from Mullai, 6 cases (15%) were from Neithal, 3 cases (7.5%) were from Kurinji.

Even though siddha literatures mention maratham as a disease free zone,most of the patients came from maratham nilam. This may be due to the altered lifestyle,environment and food habits. Since this is a single centered study, located in maratham thinai it may also have influenced the study.

Socio-economic status:

From the above mentioned tabulation, out of 40 patients, 47.5% were from poor socio-economic status. 42.5% of cases from rich background. The higher incidence in the low socio-economic status may be due to the over usage by farmer,

and manual worker among the poor. The incidence in the further population group may be due to improper nutrition and also the people living in poor sanitation.

Dietary habits:

From the above mentioned tabulation patients 65% were reported to have Non-vegetarian, 35% were reported vegetarian, so this has no statistically significant result.

Precipitating faction:

From the mentioned above tabulation result that the above obese 37.5%, the occupation related 30%, post menopause 27.5%. Hereditary 5% were the most important precipitating factors.

Mode of onset:

From the above mentioned tabulation it shows that 75% of the cases were reported to have graduate onset.

Since Osteoarthritis is a degenerative disorder it usually has a gradual onset of symptoms.

Clinical features:

According to this study 100% of them had pain, 55% of them had swelling, crepitedion (45%). Restricted movement (27.5%) Tenderness (25%) Morning Stiffness (25%) Deformity (2.5%).

Distribution in Kanmenthiram:

From the above mentioned tabulation, among the patients Kaal have been affected in 100% of cases and in 12 patients eruvai have been affected (30%).

Distribution of Three Dhosham:

Derangement in Vatham:

Viyanan and Samanan were affected in all 40 cases (100%) Abanan were affected in 12 cases (30%) and Kirukaran and Devathathan affected 9 cases (22.5%).

Derangement of Pitham:

Sathaga pitham was affected in all 40 cases (100%) Ranjagapitham was affected in 10 cases (25%), Anarpitham was affected in 9 cases (22.5%).

Derangement in Kabam:

Avalambagam, Santhigam was affected in all 40 cases 100%.

Udal Kattukal:

In all 40 cases, among the seven udal kattukkal saaram, kozhuppu Enbu were found affected 100% (Restricted Movement, Swelling, Crepitations present) and seneer is affected in 10 cases (25%).

Envagai Theruvugal:

The analysis showed the efficacy of this method and the Prime importance of Naadi.

Among the 40 cases Naadi have been affected in all cases while malam have affected in 12 cases (30%).

Naadi:

In Naadi among all 60% were Vathapitha Naadi, 30% were Pithavatha Naadi and remaining 10% were having Kabavatha Naadi.

Neikuri:

In Neikuri analysis, 50% of the cases presented with Vatha Neer, 25% with Pithaneer and 25% with Kabaneer.

Laboratory investigations were done in all the cases before and after treatment. The significant variations occur in parameters like Hb, while other parameters have insignificant variation.

Pre-Clinical Studies:

The Biochemical study of KALINGA MATHRAI had revealed the presence of Calcium, Sulphate, Chloride, Starch, Ferrous Iron, unsaturated campound, Reducing sugar, Amino Acid.

Pharmacological Studies:

The Pharmacological Studies done in KALINGA MATHIRAI revealed at presence of action such as

1. Anti inflammatory action
2. Analgesic activity

Toxicity Studies:

Acute toxicity and Subacute studies have done for KALINGA MATHIRAI in rats and it is analysed that they have no toxicity.

Treatment:

The treatment was aimed to retain the deranged dhosham and providing relief from symptoms. Before treatment the patient were advised to take vellai ennai - 15ml with hot water during early morning in empty stomach for first day of treatment. The patients was asked to take rest from internal Medicine and other activities on that day. From the next day onward the internal medicine to be given.

The author treated the patients with trial drugs KALINGA MATHIRAI (Internal Medicine) 65mg BD and KODIVELI THYLAM (External Medicine) and PATTRU (External Therapy) During treatment, the patients were advised to follow pathiyam (avoid tarmarind, tubers, meat etc). But all aspects of pathiyam could not be imposed due to practical difficulties.

SUMMARY

The disease Azhal Keel Vayu was mostly correlated with the disease osteoarthritis with reference to its etiology, clinical features and pathogenesis. It is the most commonest form of arthritis among the peoples above 50 years.

I have taken this as my dissertation and treated with KALINGA MATHIRAI as internal medicine and KODIVELI THYLAM as external medicine in Azhal Keel Vayu (osteoarthritis of Knee joint)

40 cases with azhal keel vayu were diagnosed clinically and admitted in the inpatient ward and outpatient ward of post graduation department of Sirappu Maruthuvam, Government Siddha Medical College hospital, palayamkottai and treated by the trial medicines.

- Laboratory diagnosis of azhal keel Vaayu was done by Siddha Diagnostic principles and endorsed by modern methods of investigation.
- The various Siddha aspects of examination of the disease were carried out and were recorded in the proforma.
- The trial medicine chosen for both internal and external treatment were KALINGA MATHIRAI in 65mg twice a day for fortyeight days as per the severity of the diseases KODIVELI THYLUM external.
- Before starting the treatment careful details of history was carried out and recorded for the forty selected cases.
- During the period of treatment all the patients were put under Pathiyam. [A specific dietary regimen.]
- A periodical laboratory investigation was made for all the cases along with the radiological investigations.
- The observations made during the clinical study show that the main internal drug KALINGA MATHIRAI in clinically effective.
- Though there was appreciable clinical improvement, there were not much remarkable radiographic changes.
- The action of combined treatment were given best results in patients.

Treatment:

- The treatment was aimed to retain the deranged dhoshas and providing relief from symptoms. Before treatment the patients were advised to take vellai ennai-15ml with hot water in early morning for first day of treatment.

- From the second day onwards internal medicine. KALINGA MATHIRAI 65mg two times day after food and KODIVELI THYLUM and PATTRU is given as external theraphy.
- At the time of treatment the patients were advised to follow pathiyam and specially advised to avoid foods which increase vadha.
- Daily improvement was observed to assess the efficacy. The results obtained were found to be propitious particularly results by combined therapies.
- No adverse reactions were found. Hence, the trial drug was found to be safe and effective.

CONCLUSION

All 40 patients (Both OPD and IPD with as combined therapies with trial medicines) were treated for this dissertation work with KALINGA MATHIRAI 65mg two times a day and KODNELI THYLAM and PATTRU (external)

In the pre clinical study pharmacological evaluation of the trial drug shows.

- significant analgesic effect
- significant Anti inflammatory effect (internal medicine)

In the preclinical study toxicity study of 'KALINGA MATHIRAI' shows that the trial drug had no acute toxicity.

The over all effect of the clinical trial drug are

Marked effect - 42.5%

Moderate effect - 42.5%

Mild effect -15%

No effect -0%

This result of the clinical trial illustrates the marked effect of the drug and complementary therapy.

The trial drug KALINGA MATHIRAI Internal and KODIVELI THYLAM AND PATTRU as outornal therapy is effective. No adverse effect were noticed during the treatment period. So the trial a medicine is safe and easily preparable medicine.

INGREDIENTS OF KALINGA MATHIRAI (INTERNAL)

AATTRU THUMATTIVER

\

THIPPILI

INGREDIENTS OF KODIVELI THYLAM (Internal)

KODIVELIVER

THALISA PATHERI

BUTTER

GINGELY OIL

KARUNCHEERAGAM

THANTRIKAI

COW MILK

EXTERNAL THERAPY(PATTRU)

KOLLAN KOVAI

VEENGAYAM

CHEERAGAM

AMANAKKU ENNAI

KALINGA MATHERAI (INTERNAL)

KODIVELI THYLAM (EXTERNAL)

PATTRU (EXTERNAL THERAPY)

PATTRU (EXTERNAL THERAPY)

ANNEXURE-1

PREPARATION AND PROPERTIES OF THE TRIAL DRUG

INTERNAL MEDICINE: KALINGA MATHIRAI

(Ref:GUNAPADAM MOOLIGAI Page no91)

S.NO.	DRUG	BOTANICAL NAME	PART USED	DOSE
1	AattruThumattiver	Citrullus Colocynthis	Root	35 gm
2	Thippili	Piper Longum	Fruit	35 gm

PURIFICATION:

All above drugs are purified under the formulation of "Anupoga Vaithiya Bramma Ragasiyam and Sarakku Suthi Muraigal"

Dose : 65 Mg

Duration : 30 - 48 days

SOURCE OF TRIAL MEDICINE:

The required drugs for preparation of "**KALINGA MATHIRAI"** (INTERNAL), "**KODIVELI THYLAM"** (EXTERNAL) are purchased from a well reputed country shopand Raw drugs are Authenticated by Medical botanist of Govt. Siddha Medical College, Palayamkottai, then purified and the medicine is prepared in the Gunapadam laboratory of Govt. Siddha Medical College, Palayamkottai.

PREPARATION:

The purified dried raw drugs are powdered well separately Equal quantity of each powdered drugs are then mixed well. Add water Grind it and make it as pills.

Drug storage:

The trial drug **KALINGA MATHIRAI** is stored in clean dry air tight container & it is dispensed to the patients in packets.

1.ஆற்றுதுமட்டி (Aattru thumattiver)

Botanical Name : Citrullus colocynthis

Family :Curcurbitaceae

English : Colocynth

Part used : Root

சுவை : கைப்பு

தன்மை: வெப்பம்

பிரிவு: கார்ப்பு

பொதுகுணம்:

கிடையெங்கே சோம்பலெங்கே கேடுறங்செய் வாதக்
கடையெங்கே யாற்றுக கலிங்க - மடைதிறக்கில்
அண்டை யடைச்சலெங்கே யாயிழையார் சூதகத்தின்
உண்டை யுடைச்சலெங்கே யோது.

தீரும் நோய்கள்:

கீல்பிடிப்பால் நடையின்றிக் கிடத்தல்
வளிக்குற்றத்தால் உண்டாகும் நோய்கள்
சூலத்திலுண்டாகும் நோய்கள்
சூதகத் தடை

செய்கை:

Clinical constituents:

3-0-Methyl ether, isovitoyin, isoorientin isosaponarin, 2-0-B-D-glucopyranosylacurbitain hydromethanolic oxtract n-butanol extract. n-B Polyphenols, myricetin, gallic acid, polyphends.

2. திப்பிலி(Thippli)

வேறுபெயர்

ஆர்கதி, உண்சரம், உலவைநாசி, காமன், குடோரி, கோழையறுக்கி, பிப்பிலி, ஆதிமருந்து

Botanical name - piper longum

Family - Piperaceae

Part used - fruit

சுவை : இனிப்பு

தன்மை : தட்பம்

பிரிவு : இனிப்பு

Constituents

Piperine, rutin beto - carpophylleneliperline, piperamine, lialool

செய்கை

வெப்பமுண்டாக்கி

அகட்டுவாய்வகற்றி

பொதுகுணம் :

‘கட்டியெதிர்நின்றுகடுநோயெல்லாம் பணியும்

திட்டிவினையகலும் தேகமெத்த - புட்டியாம்

மாமனுக்குமாமமெனமற்றவர்க்குமற்றவனாங்

காமமெனுந் திப்பிலிக்கும் கை” -தேரன்வெண்பா

EXTERNAL DRUG: KODIVELI THYLAM

(Ref: GUNAPADAM MOOLIGAI page No 385)

S.NO.	DRUG	BOTANICAL NAME	PART USED	DOSE
1	Kodiveliver	Plumbago zeylanica	Root	35 gm
2	Thalisa Patheri	Taxus buccata	Leaf	35 gm
3	Thantrikai	Terminalia bellirica	Fruit	35 gm
4	Karuncheeragam	Nigella sativa	Seed	35 gm
5	Gingely Oil	Sesamum indicum	Seed	1/2 padi (650ml)
6	Butter			Punnaikai (6gm)
7	Cow Milk			Required Amount

PURIFICATION:

All above drugs are purified under the formulation of "Anupoga Vaithiya Bramma Ragasiyam and Sarakku Suthi Muraigal"

METHOD OF PREPARATION

Dried drugs are Grind with cow milk and mix the powder with oil and heat until required consistency formed filter it then kept in a dry air tight container.

INDICATIONS:

It is indicated externally for Joint Pain.

1. கொடிவேலி

வேறுபெயர்கள்: வெண்சித்திரமூலம், வெண்கொடிமூலம்.

Botanical name: Plumbago zeylanica.

Family name: plumbaginaceae.

English name: Ceylon lead- wort

Part used: Roof , Root bark.

சுவை: கார்ப்பு, விறுவிறுப்பு

தன்மை: வெப்பம்

பிரிவு: கார்ப்பு

பொதுக்குணம்:

கட்டிவிர ணங்கிரந்தி கால்கள் அரையாப்புக்
கட்டிச்சூ லைவீக்கங் காழ்மூலம் -முட்டிரத்தக்
கட்டுநீ ரேற்றங் கனத்த பெருவயிறும்
அட்டுங் கொடிவேலி யாம்.

தீரும்நோய்கள்:கட்டி, புண், கழலை, வளிநோய், அரையப்புக்கட்டி, குத்தல், சோபை, மூலரோகம், உதிரகட்டு, நீரேற்றம், பெருவயிறு போம்.

செய்கை: முறைவெப்பகற்றி, வியர்வையுண்டாக்கி.

Chemical Constituents: plumbagin, isoshinanolone , plumbagic acid, beta-sitosterol, 4-hydroxybenzaldehyde, trans-cinnamic acid, vanillic acid, 2, 5-dimethyl-7-hydroxychromone, indole-3-carboxaldehyde .

2. கருஞ்சீரகம்

வேறுபெயர்கள்: அரணம் , உபகுஞ்சிகை.

Botanical name: Nigella sativa.

Family name: Ranunculaceae

English name: Black cumin

Part used: Seed

சுவை: கைப்பு

தன்மை: வெப்பம்

பிரிவு: கார்ப்பு

பொதுக்குணம்:

கருஞ்சீ ரகந்தான் கரப்பனொடு புண்ணும்
வருஞ்சிராய்ப் பீநசமு மாற்றும்-அருந்தினால்
காய்ச்சல் தலைவலியுங் கண்வலியும் போமுலகில்
வாய்ச்ச மருந்தெனவே வை.

தீரும் நோய்கள்: மண்டை கரப்பான் , புண் ,உட்சூடு, தலை நோய் ,கண்ணோய், சிரங்கு, வயிற்றுப் பொருமல் , குன்மம் , மார்புவலி, இருமல் , வாந்தி, ஓக்காளம் , காமாலை ஆகியவை தீரும்.

செய்கை: சிறுநீர்பெருக்கி, ருதுவுண்டாக்கி, பாற்பெருக்கி, பசித்தீத்தூண்டி, தூக்குணிபுழுக்கொல்லி, வறட்சியகற்றி.

Chemical Constituents: Cuminaldehyde, cymene, terpenoids, essential oil.

3. தாளிசபத்திரி

Botanical name: Abies spectabilis

Family name: Pinaceae

English name: Flaurtia calapharacta

Part used: Leaf

சுவை: கார்ப்பு

தன்மை: வெப்பம

பிரிவு: கார்ப்பு

பொதுக்குணம்:

நாசி களப்பிணிகள் நாட்பட்ட -காசஞ்சு
வாசம் அருசி வனமங்கால் -வீசிவரு
மேகமந்தம் அத்திசுரம் விட்டேகுந் தாளிச்சத்தால்
ஆகுஞ் சுகப்பிரச வம்.

தீரும் நோய்கள்: கழிச்சல் , சுரம் , நாட்பட்ட இருமல் , இரைப்பு, வாந்தி, வாய்வு, அசீரணம் , அத்திசுரம் தீரும். இதனால் சுகப்பிரசவம் உண்டாகும்.

செய்கை: பசித்தீத்தூண்டி, அகட்டுவாய்வகற்றி, கோழையகற்றி, உரமாக்கி.

4. தான்றிக்காய்

வேறுபெயர்கள்: அகஷம், அமுதம், எரிகட்பலம், கந்துகன், சகதம், விபீதகம் .

Botanical name: Terminalia bellirica

Family name: Combretaceae

English name: Beleric myrobalans

Part used: Seed

சுவை: துவர்ப்பு

தன்மை: வெப்பம்

பிரிவு: இனிப்பு

பொதுக்குணம்:

சிலந்திவிடம் காமியப்புண் சீழான மேகங்
கலந்துவரும் வாதபத்தங் காலோ-டலர்ந்துடலில்
ஊன்றிக்காய் வெப்ப முதிரபித் துங்கரக்குந்
தான்றிக்காய் கையிலெடுத் தால்
ஆணிப்பொன் மேனிக் கழகும் ஒளியுமிகும்
கோணிக்கொள் வாதபித்தக் கொள்கைபோம்-தானிக்காய்
கொண்டவர்க்கு மேகமறும் கூறா அனற்றிணயும்
கண்டவர்க்கு வாதம்போம் காண்

தீரும் நோய்கள்: சிலந்திநஞ்சு, ஆண்குறிப்புண் , வெள்ளை, குருதியழல்நோய் , வளி தீ குற்றங்களால் வரும் நோய்கள் போம்.உடற்கு அழகையும் ஒளியையும் கொடுத்து முக்குற்றங்களையும் தன்னிலைப்படுத்தும்.

செய்கை: துவர்ப்பி, கோழையகற்றி, மலமிளக்கி, உரமாக்கி

Chemical Constituents: Beta-sitosterol, gallic acid, ellagic acid, ethyl gallate, galloyl glucose, chebulagic acid,Tanin.

5. பசும்பால்

வேறுபெயர் : பயசு, சுதை, துத்தம், கீரம், பயம், அமுது

பொதுகுணம்:

பாலர் கிழவர் பழஞ்சுரத்தோர் புண்ணாளி
சூலையர் துர்ப்பலத்தோர் மேகநோயாளி ஏலுமிவர்
எல்லார்க்கு மாகும் இளைத்தவர்க்குஞ் சாதகமாய்
நல்லாய் பசுவின்பால் நாட்டு

பொருள் : பாலர் முதல் கிழவர் வரை ஆகும் சூலை, மேக நோய் நீங்கும்.

6. நல்லெண்ணெய் (எள்)

(எள்ளில் இருந்து நல்லெண்ணெய் தயாரிக்கப்படுகிறது)

Botanical Name	:	Sesamum Indicum
Family	:	Pedaliaceae
Part Used	:	Seed
சுவை	:	இனிப்பு
தன்மை	:	வெப்பம்
பிரிவு	:	இனிப்பு
Therapeutic Actions	:	Emmlnagogie, Stimulant, Tonic, Diuretic, Galactogogce.
Chemical Constituents	:	Vitamin E, Sesamin, Segamolin, Phytosterol.

பொதுகுணம்:

கண்ணுக்கு ஒளியையும் உடலுக்கு வன்மையும் தரும்
குருதி பெருக்கை உண்டாகும்

- அகத்தியர் குணவாகடம்

EXTERNAL THERAPY(PATTRU)

Ref:GUNAPADAM MOOLIGAI Page No:61

External therapy : PATTRU

Gunapadam : Mooligai

S.No.	Drug	Botanical Name	Drug Used	Dose
1	Aakasa garden	Corallocarpus epigaeus	Root	10g
2	Vengayam	Allium cepa	Bulb	10g
3	Chirakam	Cuminum cyminum	seed	10g
4	Amanarkku ennai	Ricinus communi	seed	10ml

Purification:

All aove drugs are purified under the formulation of ‘Anupoga Vaithiya Bramma Ragasiyam and Sarakesan Suthi Muraigal”

Method of preparation:

All above drugs are powdered and mix the powder with oil heat the mixure and applied in knee joint as pattru.

Indication:

It is indicated externally for Joint pain.

Drug Storage:

The trial drug Pattra is stored in clean dry air tight container it is depensed to the patients in pack

1.ஆகாசக் கருடன்

Botanical Name: Corallocampus Epigueus

English Name: Bryoms

Part used : Root

சுவை : கைப்பு

தன்மை : வெப்பம்

பிரிவு : கார்ப்பு

பொது குணம்:

துப்டவிடம் பாண்டு வெப்பு சூலைவா தங்கிரந்தி
குட்டம் அரிப்பக்கி கோண்குடல்நோய் - கெட்டகண்ட
மாலைபோய் கொல்லன்கோ வைக்கிழங்கால் முத்தோட
வேலைபோம் பாரில் விளம்பு

தீரும் நோய்கள்:

பாண்டு, வெப்பு, சூலை, கிரந்தி, குட்டம், கீல்பிடிப்பு, கீல்வாதங்கள் போகும்.
செய்கை: உடற்றேள்ளி, உரமாக்கி

Chemical constituents:

Ap - hydrocybenzoyl aster, a sestortepene lactone, corallocarpscalarolide, a pyridine caryoxylic ester, 2-Mehylheryl p-hydroxybenzoate, Dyridine 3' - caryoxylic acid ester.

2.சின்னவெங்காயம் (Vengayam)

Botanical Name: Allium coper

English : Onion

part used : bulb

சுவை : கைப்பு

தன்மை : வெப்பம்

பிரிவு : கார்ப்பு

பொதுகுணம்:

வெப்பமு லங்கிரந்தி வீறுரத்த பித்தமுடன்
செப்புநர அககரந்தீ ராத்தாகம் - வெப்புக்
கடுப்பதுமந் தஞ்சந்தி காசம்வயிறு றுப்பல்
தடிப்பேறும் வெங்காய்தால்

தீரும் நோய்கள்:

கிரந்தி, பித்தம், வெப்பு, காசம், வயிற்றுப்பல்

செய்கை:

வெப்பமுண்டாக்கி, சிறுநீர்பெருக்கி, கோழையகற்றி, சூதகமுண்டாக்கி, உள்ளழலாற்றி.

Chemical Constituents:

quercetin, fructose, querctin-3-glucoside, isorhamnetin-4-glucoside, xylose, gallactose, glucose, Mannoke, organo solfur compounds, a llyl sulfides, flownoids, cycloilline, sulfur

3.சீரகம்(Seeragam)

வேறு பெயர்கள்: அசை, சீரி, உபகும்பீசம், நற்சீரி, துத்தசாம்பலம், பித்த நாசினி, போசன குடோரி, மேத்தியம்.

Botanical Name: Cuminum cyminum

Family Name: Apiaceae

Part Used: Seeds

சுவை: கார்ப்பு

தன்மை: தட்பம்

பிரிவு: இனிப்பு

செய்கை: அகட்டுவாய்வகற்றி,வெப்பமுண்டாக்கி,பசித்தீத்தூண்டி.

Chemical Constituents: Essential oil-thymene, cuminol, cumic aldehyde.

பொதுக்குணம் :

வாயுவொடு நாசிநோய் வன்பித்தஞ் சேராது
காயம் நெகிழாது கண்குளிருந் - தூயமலர்க்
காரளகப் பெண்மயிலே! கைகண்ட தித்தனையுஞ்
சீரகத்தை நீதினமுந் தின்

-அகத்தியர் குணவாகடம்

4.ஆமணக்கு எண்ணெய் (விளக்கெண்ணெய்)

Botanical Name : Ricinus Communis

Family : Euphorbiaceae.

வேறு பெயர் : ஏரண்டம், சித்திரம், தலரூபம்

Part Used : Seed

சுவை : கசப்பு

வீரியம் : வெப்பம்

பிரிவு : கார்ப்பு

Therapeutic Actions : Laxative, Emollient

Chemical Constituents : Ricinine, Ricin, Resin

பொதுகுணம்:

ஆமணக் கெண்ணெய் தன்னை யணிநில மறிய கேண்மின்
பூமணச் சந்துதோறும் பொருந்திய வாதம் போக்கும்
தீமந்தத் தானும் போக்குந் திகழ்வுடன் விரைவு முண்டாம்
தீமனக் குடலில் வாதஞ் சேர்குட லேற்றம் போமே

- எடு

பொருள் : ஆமணக்கெண்ணெயினால் வாதம் நீங்கும்.

ANNEXURE-11

QUALITATIVE AND QUANTITATIVE ANALYSIS

BIOCHEMICAL ANALYSIS OF SIDDHA POLYHERBAL DRUG KALINGA MATHIRAI

Prepaeation of the extract:

5 grams of the drug was weighed accurately and placed in a 250ml clean beaker. Then 50ml of distilled water added to it and dissolved well. Then it was boiled well for about 10 minutes. It was cooled and filtered in a 100ml volumetric flask and then it is made upto 100ml with distilled water. This fluid was taken for analysis.

QUALITATIVE ANALYSIS

S. No.	EXPERIMENT	OBSERVATION	INFERENCE
1	**TEST FOR CALCIUM** 2ml of the above prepared extract is taken in a clean test tube. To this add 2ml of 4% Ammonium oxalate solution.	A white precipitate is formed	Indicates the presence of calcium.
2	**TEST FOR SULPHATE** 2ml of the extract is added to 5% Barium Chloride solution	A white precipitate is formed	Indicates the presence of sulphate
3	**TEST FOR CHLORIDE** The extract is treated with silver nitrate solution.	A white precipitate is formed	Indicates the presence of chloride.
4	**TEST FOR CARBONATE** The substance is treated with concentrated Hcl.	No brisk effect vessence is formed	Absence of Carbonate

5	**TEST FOR STARCH** The extract is added with weak iodine solution	Blue Colour is formed.	Indicates the present of Starch
6	**TEST FOR FERRIC IRON** The extract is acidified with Glacial acetic acid and potassium ferro cyanide.	No blue color is formed.	Absence of ferric iron
7	**TEST FOR FERROUS IRON** The extract is treated with concentrated Nitric acid and Ammonium thiocyanate solution.	Blood red colour is formed.	Indicates the presence of ferrous Iron.
8	**TEST FOR PHOSPHATE** The extract is treated with Ammonium Molybdate and concentrated nitric acid	No yellow precipitate is formed	Absence of Phosphate
9	**TEST FOR ALBUMIN** The extract is treated with Esbach's reagent	No yellow precipitate is formed.	Absence of Albumin.
10	**TEST FOR TANNIC ACID** This extract is treated with ferric chloride.	No blue back precipitate is formed	Absence of galvanic acid.
11	**TEST FOR UNSATURATION** Potassium permanganate solution is added to the extract.	It gets decolorized	Indicates the presence of unsaturated compound

12	**TEST FOR THE REDUCING SUGAR** 5ml of Benedict's qualitative solution is taken in a test tube and allowed to boil for 2 minutes and add 8-10 drops of the extract and again boil it for 2 minutes	Colour change occurs	Indicates the presence of reducing sugar
13	**TEST FOR AMINO ACID** One or two drops of the extract is placed on a filter paper and dried well. After drying 1% Ninydrin is sprayed over the same and dried it well.	violet colour is formed.	Indicates the presence of Amino Acid.
14	**TEST FOR ZINC** The extract is treated with Potassium Ferro cyanide.	No white precipitate is formed.	Absence of Zinc.

INFERENCE:

The Bio chemical analysis of the trial drug kalinga Mathirai was tabulated above in table

The trial drug Kalinga Mathirai contains.

1. Calcium
2. Sulphate
3. Chloride
4. Starch
5. Ferrous Iron
6. Unsaturated compound
7. Reducing sugar
8. Amino Acid.

The mode of action of the trial drug Kalinga Mathirai which brings about the Bone Mineralisation osteoblastic and osteoclastic activity in body. May be due to the presence of calcium Sulphate, Chloride, Amino acid, Starch, Ferrous Iron in it.

ANNEXURES-111

PHARMACOLOGICAL ANALYSIS

EFFECT OF KALINGA MATHERAI ON CARRAGEEN-INDUCED LOCALISED INFLAMMATORY PAIN IN ALBINO RATS

The anti-inflammatory activities of KALINGA MATHERAI at 100 and 200 mg/kg doses were evaluated using carrageenan-induced paw edema method. The inflammation was readily produced in the form of edema with the help of irritant such as carrageenan. Carrageenan is a sulphated polysaccharide obtained from sea weed (Rhodophyceae) and when injected cause the release of prostaglandins by the way it produces inflammation and edema.

REQUIREMENTS:

Animal : Albino rat (180-200 g)

Drugs and chemicals : Carrageenan (1%w/v), Diclofenac sodium (standard), Carboxy methyl cellulose (1%w/v), Plethysmo meter.

Test compounds : KALINGA MATHIRAI.

METHOD:

Anti-inflammatory activity was performed by the following procedure of Bhandri et al(1) The animals were divided into 4 groups each having six animals. A freshly prepared suspension of carrageenan (1% w/v , 0.1 ml) was injected to the planter region of left hind paw of each rat. One group was kept as control and the animals of the other groups were pretreated with the KALINGA MATHIRAI test Compounds dissolved with 2 ml sterile water given through orally 30 min before the carrageenan treatment. The paw volumes of the test compounds, standard and control groups were measured at 60,240,360 minutes of carrageenan treatment with the help of plethysmometer . Mean increase in paw volume was measured and the percentage of inhibition was calculated.

% Anti-inflammatory activity = (Vc-Vt / Vc) x 100

Where, ***Vt***-mean increase in paw volume in rats treated with test compounds,

Vc-mean increase in paw volume in control group of rats.

TABLE No.1

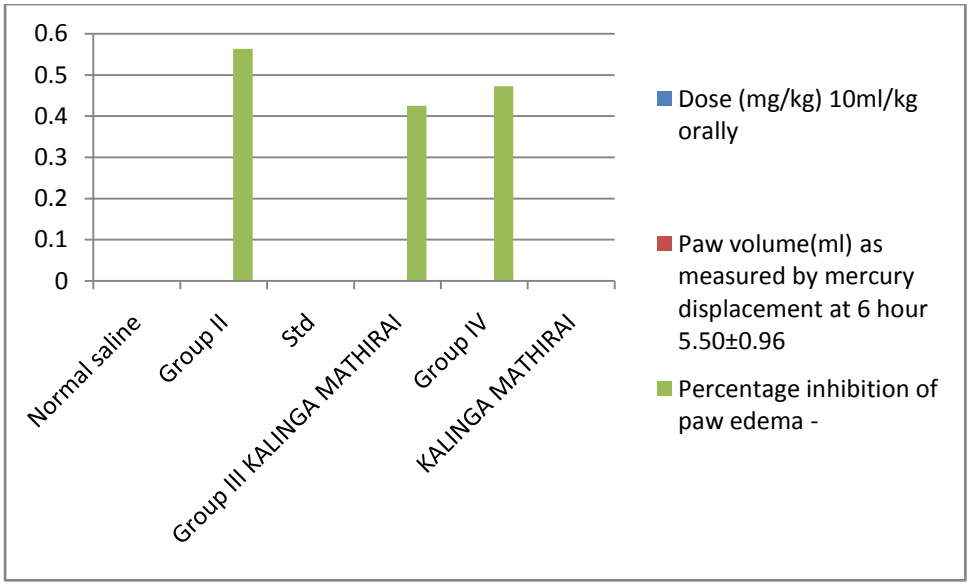
ANTI-INFLAMMATORY ACTIVITY OF KALINGA MATHIRAI

Treatment	Dose (mg/kg)	Paw volume(ml) as measured by mercury displacement at 6 hour	Percentage inhibition of paw edema
Group I Normal saline	10ml/kg orally	5.50±0.96	-
Group II Std	10mg/kg I.P.Diclofenac sodium	2.40±0.40	56.36%
Group III KALINGA MATHIRAI	100mg/kg.Orally.	3.16±0.48	42.54%
Group IV KALINGA MATHIRAI	200mg/kg.Orally.	2.90±0.52	47.27%

* Data are expressed as Mean ± S.E.M.

*Data were analyzed by one way ANOVA followed by Newman's keul's multiple range tests, to determine the significance of the difference between the control group and rats treated with the test compounds.

*a Values were significantly different from normal control at P< 0.01.



Results

Anti- inflammatory activity

KALINGA MATHIRAI at 100 and 200 mg/kg doeses were tested for their Anti- inflammatory activity by using carrageenan Induced rat paw edema method and the results are tabulated in table no 1. The results reveals that both extracts of KALINGA MATHIRAI at 100 and 200 mg/kg doses possesses significant Anti- inflammatory activity when compared to control group at $p<0.01$.

ANALGESIC ACTIVITY OF KALINGA MATHIRAI

Hot plate method

Animals

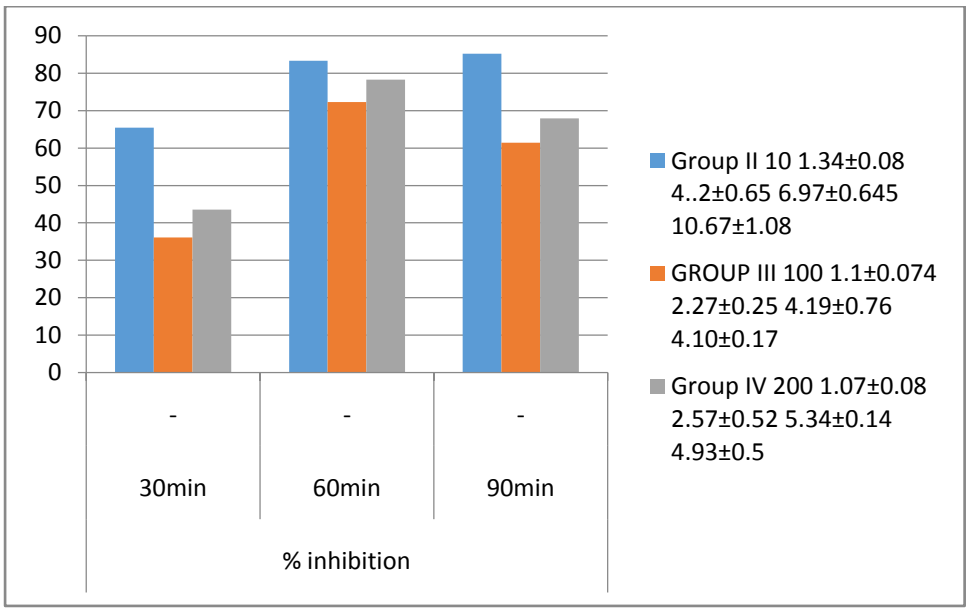
Young wister albino rats of either sex aged 4-5 weeks, average weight 100-150 gm were used for the experiment. The ratwere purchased from the animal jipmer . They were kept in standard environmental condition (at 24.0±0°C temperature & 55-65% relative humidity and 12 hour light/12 hour dark cycle) for one week for acclimation after their purchase and fed ICDDRB formulated rodent food and water ad libitum. The set of rules followed for animal experiment were approved by the institutional animal ethical committee (Zimmermann, 1983).

Experimental animals of either sex were randomly selected and divided into four groups designated as group-I, group-II, group-III and group-IV consisting of five Rats in each group for control, positive control and test sample group respectively. Each group received a particular treatment i.e. control (1% Tween-80 solution in water, 10ml/kg, p.o.), positive control (Diclofenac sodium 10 mg/kg, p.o.) and the test sample (drug of 100 mg/kg, p.o. & 200 mg/kg, p.o. respectively). The animals were positioned on Eddy's hot plate kept at a temperature of 55±0.5 0C. A cut off period of 15 s (Franzotti *et al.*, 2000) was observed to avoid damage to the paw. Reaction time was recorded when animals licked their fore or hind paws, or jumped prior to and 0, 30, 60 and 90 min after oral administration of the samples (Eddy *et al.*, 1953; Kulkarni, 1999; Toma *et al.*, 2003).

Statistical analysis

GROUP	DOSE	Mean latency before and after drug administration				% inhibition		
		0 min	30 min	60 min	90 min	30min	60min	90min
Group I	Vehicle	1.26±0.20	1.45±0.26	1.16±0.19	1.58±0.27	-	-	-
Group II	10	1.34±0.08	4..2±0.65	6.97±0.645	10.67±1.08	65.47	83.35	85.19
Group III	100	1.1±0.074	2.27±0.25	4.19±0.76	4.10±0.17	36.12	72.31	61.46
Group IV	200	1.07±0.08	2.57±0.52	5.34±0.14	4.93±0.5	43.57	78.27	67.95

The results of statistical analysis for animal experiment were expressed as mean ± SEM and were evaluated by ANOVA followed by Dunnet's multiple comparisons. The results obtained were compared with the vehicle control group. The $p<0.05$, 0.001 were considered to be statistically significant



Result

Results of hotplate test are presented in Table for drugs respectively. The drug were found to exhibit a dose dependent increase in latency time when compared with control. At 90 minutes, the percent inhibition of two different doses (100 and 200 mg/kg body weight) was 61.46% & 67.95% respectively. The results were found to be statistically significant ($p<0.001$)

Discussion

Sidhha is the first system of medicine to emphasize health as the perfect state of physical, psychological, social and spiritual components of a human being. The fundamental principle of this medicine successfully eliminates the evil side effects without losing the beneficial medicinal properties. Diclofenac was used as a reference drug in the current study as it has both central, peripheral actions and can significantly treat nociceptive pain as in this model. In the current study, pain threshold increased significantly during the period of observation in all the drug treated groups, with maximum effect observed in the drug Kalinga Mathirai at a dose of 200mg/kg as

shown in table 1. The analgesic activity of *drug* was comparable to diclofenac at 30, 60, 120 minutes appears to be a significant finding and suggests that this drug has a slow onset of analgesic action

CONCLUSION:

Drug possess significant analgesic and anti-inflammatory potential as evidenced from the present preclinical study. These findings support the use of drug Kalinga Mathirai in traditional system of medicine for the management of pain and inflammatory conditions. Further studies are needed to be carried out in other animal models of pain and inflammatory to validate its efficacy and to identify the active phytoconstituents in the formulation and their targets in pain and inflammatory pathways

TOXICITY STUDIES

EVALUATION OF ACUTE TOXICITY STUDY OF KALINGA MATHIRAI

Effect of Acute Toxicity Study (14 Days) of KALINGA MATHIRAI

Table no –1 Physical and behavioral examinations.

Group no.	Dose(mg/kg)	Observation sign	No. of animal affected.
Group-I	5mg/kg	Normal	0 of 3
Group- II	50mg/kg	Normal	0 of 3
Group-III	300mg/kg	Normal	0 of 3
Group-IV	1000mg/kg	Normal	0 of 3
Group-V	2000mg/kg	Normal	0 of 3

Table no-2 Home cage activity

Functional and Behavioural observation	Observation	5mg/kg Group (G-I)	50mg/kg (G-II)	300mg/kg (G-III)	1000mg/kg (G-IV)	2000mg/kg (G-V)
		Female n=3	Female n=3	Female n=3	Female n=3	Female n=3
Body position	Normal	3	3	3	3	3
Respiration	Normal	3	3	3	3	3
Clonic involuntary Movement	Normal	3	3	3	3	3
Tonic involuntary Movement	Normal	3	3	3	3	3
Palpebral closure	Normal	3	3	3	3	3
Approach response	Normal	3	3	3	3	3
Touch response	Normal	3	3	3	3	3
Pinna reflex	Normal	3	3	3	3	3
Tail pinch response	Normal	3	3	3	3	3

Table no-3 Hand held observation

Functional and Behavioral observation	Observation	Control	5 mg/ kg (G-I)	50 mg/kg (G-II)	300 mg/kg (G-III)	1000 mg/kg (G-IV)	2000 mg/kg (G-V)
		Female n=3	Female n=3	Female n=3	Female n=3	Female n=3	Female n=3
Reactivity	Normal	3	3	3	3	3	3
Handling	Normal	3	3	3	3	3	3
Palpebral closure	Normal	3	3	3	3	3	3
Lacrimation	Normal	3	3	3	3	3	3
Salivation	Normal	3	3	3	3	3	3
Piloerection	Normal	3	3	3	3	3	3
Pupillary reflex	Normal	3	3	3	3	3	3
Abdominal tone	Normal	3	3	3	3	3	3
Limb tone	Normal	3	3	3	3	3	3

Table no-4 Mortality

Group no	Dose no(mg/kg)	Mortality
Group-I	5(mg/kg)	0 of 3
Group-II	50(mg/kg)	0 of 3
Group-III	300(mg/kg)	0 of 3
Group-IV	1000(mg/kg)	0 of 3
Group-V	2000(mg/kg)	0 of 3

RESULT:

From acute toxicity study it was observed that the administration of KALINGA MATHIRAI at a dose of 2000 mg/kg to the rats do not produce drug-related toxicity and mortality. So No-Observed-Adverse-Effect- Level (NOAEL) of KALINGA MATHIRAI is 2000 mg/kg.

DISCUSSION

KALINGA MATHIRAI was administered single time at the dose of 5mg/kg, 50mg/kg , 300mg/kg, 1000mg/kg and 2000mg/kg to rats and observed for consecutive 14 days after administration. Doses were selected based on the pilot study and literature review. All animals were observed daily once for any abnormal clinical signs. Weekly body weight and food consumption were recorded. No mortality was observed during the entire period of the study. Data obtained in this study indicated no significance physical and behavioural signs of any toxicity due to administration of **KALINGA MATHIRAI** at the doses of 5mg/kg, 50mg/kg , 300mg/kg, 1000mg/kg and 2000mg/kg to rats.

At the 14th day, all animals were observed for functional and behavioral examination. In functional and behavioral examination, home cage activity, hand held activity were observed. Home cage activities like Body position, Respiration, Clonic involuntary movement, Tonic involuntary movement, Palpebral closure, Approach response, Touch response, Pinna reflex, Sound responses, Tail pinch response were observed. Handheld activities like Reactivity, Handling, Palpebral closure, Lacrimation, Salivation, Piloercetion, Papillary reflex, abdominaltone, Limb tone were observed. Functional and behavioral examination was normal in all treated groups.Food consumption of all treated animals was found normal as compared to normalgroup.

Body weight at weekly interval was measured to find out the effect of **KALINGA MATHIRAI** on the growth rate. Body weight change in drug treated animals was found normal.

INTERPRETATION:

KALINGA MATHIRAI was administered single time at the dose of 5mg/kg, 50mg/kg , 300mg/kg, 1000mg/kg and 2000mg/kg to rats and observed for consecutive 14 days after administration. Doses were selected based on the pilot study and literature review. All animals were observed daily once for any abnormal clinical signs. Weekly body weight and food consumption were recorded. No mortality was observed during the entire period of the study. Data obtained in this study indicated no significance physical and behaviou ral signs of any toxicity due

to administration of **KALINGA MATHIRAI** at the doses of 5mg/kg, 50mg/kg , 300mg/kg, 1000mg/kg and 2000mg/kg to rats.

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Body weight at weekly interval was measured to find out the effect of **KALINGA MATHIRAI** on the growth rate. Body weight change in drug treated animals was found normal.

SUB-ACUTE TOXICITY STUDY IN WISTAR RATS TO EVALUATE TOXICITY PROFILE OF KALINGA MATHIRAI

Table :5 EFFECT OF SUB- ACUTE DOSE (28 DAYS)OF KALINGA MATHIRAI ON **BODY WEIGHT IN GRAM**

GROUP	CONTROL	LOW	MID	HIGH
1st day	142.3±0.03	125±1.343	124.3±2.131	126.3±2.13
7th day	132.3±0.03	131.3±1.243	131±2.013	137±2.01
14th day	134.1±0.004	102.3±1.02	102.4±2.002	103.4±2.002
21st day	103.3±1.120	110.2±1.401	104±1.031	105±1.03
28th day	113.3±0.041	112.3±1.102	143±2.0005	146±2.010

Values are expressed as mean ± SEM Statisticalsignificance (p) calculated by one way ANOVA followed by Dennett's(n=6); $^{ns}p>0.05$, *p<0.05, **p<0.01, ***p<0.001, calculated by comparing treated groupswith control group.

EFFECT OF SUBACUTE DOSE (28 DAYS)OF KALINGA MATHIRAI

Table : 6 KALINGA MATHIRAI ON ORGAN WEIGHT (PHYSICAL PARAMETER) IN GRAM

GROUP		CONTROL	LOW	MID	HIGH
HEART		0.43±0.01	0.34±0.01	0.41±0.01	0.41±0.01
LIVER		2.31± 0.20	2.33±0.12	2.20±0.01	2.23± 0.13
LUNGS		0.81±0.05	0.81±0.04	0.50±0.14	0.43±0.05
KIDNEY	L	0.43±0.01	0.52±0.02	0.43±0.01	0.41±0.01
	R	0.41±0.015	0.48±0.01	0.41±0.014	0.42±0.014

Values are expressed as mean ± SEM Statisticalsignificance (p) calculated by one way ANOVA followed by Dennett's(n=6); $^{ns}p>0.05$, *p<0.05, **p<0.01, ***p<0.001, calculated by comparing treated groupswith control group.

EFFECT OF SUB- ACUTE DOSE (28 DAYS) OF KALINGA MATHIRAI ON HAEMATOLOGICAL PARAMETERS

Table no 7

Drug treatment	RBC million cells/cmm	WBC cells/cmm	Haemoglobin gm %	Differential count %			
				Neutophils	Eosinophils	Monocyte	Lymphocyte
Control	6.81±0.30	5252.41±22.32	15.40±0.35	41.27±1.10	3.53±0.01	3.45±0.05	23.13±3.22
LOW	6.47±0.10	4334.04±22.22	14.20±0.33	35.54±1.31	2.10±0.04	4.12±0.20	23.22±3.41
MID	6.03±0.11	5304.25±31.35	13.11±1.01	30.32±2.12	1.44±0.02	3.32±0.30	23.13±3.21
HIGH	6.26±0.11	4808.25±31.35	16.11±1.01	28.32±2.12	1.50±0.02	3.34±0.30	24.13±3.23

Values are expressed as mean ± SEM Statisticalsignificance (p) calculated by one way ANOVA followed by Dennett's(n=6); $^{ns}p>0.05$, *p<0.05, **p<0.01, ***p<0.001, calculated by comparing treated groupswith control group.

Table :8 EFFECT OF SUB- ACUTE DOSE(28 DAYS)OF KALINGA MATHIRAI ON BIOCHEMICAL PARAMETERS

Drug Treatment	SGPT (IU/L)	SGOT(IU/L)	ALT(IU/L)	Urea (mg/dl)	Creatinine(mg/dl)
Control	**32.14±3.01**	**42.24±4.21**	**243.12±10.32**	**25.35±3.00**	**0.94±0.02**
LOW	**32.13±3.11**	**41.23±4.01**	**251.11±11.42**	**20.53±2.32**	**0.60±0.03**
MID	**30.21±4.34**	**44.31±2.11**	**245.45±4.04**	**29.12±2.12**	**0.45±0.03**
HIGH	**32.21±4.34**	**40.31±2.11**	**234.45±4.04**	**20.12±2.12**	**0.46±0.03**

Table No. : 9 EFFECT OF SUB- ACUTE DOSE (28 DAYS) OF KALINGA MATHIRAI BIOCHEMICAL PARAMETERS

GROUP	CONTROL	KALINGA MATHIRAI (200mg/kg)	KALINGA MATHIRAI (400mg/kg)	KALINGA MATHIRAI (600mg/kg)
TOTAL BILIRUBIN (mg/dl)	0.63±0.27	0.8±0.27	0.78±0.76	0.60±0.9

Values are expressed as mean ± SEM Statisticalsignificance (p) calculated by one-way ANOVA followed by Dennett's(n=6); $^{ns}p>0.05$, *p<0.05, **p<0.01, ***p<0.001, calculated by comparing treated groupswith control group.

Table:10 EFFECT OF SUB- ACUTE DOSE (28 DAYS) OF KALINGA MATHIRAI ON FOOD INTAKE IN GRAM

GROUP	CONTROL	Low	mid	High
1st DAY	18.33±12.5110	19.1672±13.3	12.10±20.71	17.5±7.32
7th DAY	15.5±10.10	10.863±11.67	16.73±9.553	11.17±14.21
14th DAY	18.83±8.52	10.83±13.28	10±13.86	19.72±8.381
21st DAY	11.87±12.2	15±7.466	15.88±9.23	19.17±8.01
28th DAY	12.10±11.18	18.38±10.50	10±8.20	10±7.27

Values are expressed as mean ± SEM Statisticalsignificance (p) calculated by one-way ANOVA followed by Dennett's(n=6); $^{ns}p>0.05$, *p<0.05, **p<0.01, ***p<0.001, calculated by comparing treated groupswith control group

Table:11. Effect of Sub- Acute Dose (28 Days) Of KALINGA MATHIRAI On Water Intake in ml

GROUP	CONTROL	KALINGA MATHIRAI (200mg/kg)	KALINGA MATHIRAI (400mg/kg)	KALINGA MATHIRAI (600mg/kg)
1st DAY	98.38±13.5110	89.72±14.3426	102.10±21.79	67.5±7.603
7th DAY	85.5±11.7938	100.863±12.70	76.6673±9.863	81.6717±14.4150
14th DAY	58.3383±8	90.63±14.2812	80±13.92	89.12±8.81
21st DAY	91.6687±12.9	85±8.462	65.38±9.550	89.1717±8.72
28th DAY	82.10±11.40	88.38±11.04	80±8.961	70±7.73

Values are expressed as mean ± SEM Statisticalsignificance (p) calculated by one-way ANOVA followed by Dennett's(n=6); $^{ns}p>0.05$, *p<0.05, **p<0.01, ***p<0.001, calculated by comparing treated groupswith control group

Table: 12 EFFECT OF SUB ACUTE DOSES (28 DAY) OF KALINGA MATHIRAI ON ELECTROLYTES: -

GROUP	CONTROL	KALINGA MATHIRAI (200mg/kg)	KALINGA MATHIRAI (400mg/kg)	KALINGA MATHIRAI (600mg/kg)
Sodium (mg/dl)	154.90±0.85	154.40±0.92	151.99±0.71	154.70±0.60
Calcium(mg/dl)	10.5.80±0.89	13.90±0.783***	14.6±0.99***	16.10±0.11***
Phosphorus (U/L)	10.28±0.07	$10.30±0.01^{ns}$	$11.30±0.91^{ns}$	11.7±0.502*

Values are expressed as mean ± SEM Statisticalsignificance (p) calculated by one-way ANOVA followed by Dennett's(n=6); NS- non-significant, *p<0.05, **p<0.01, ***p<0.001,

RESULTS:

CLINICAL SIGNS:

All animals in this study were free of toxic clinical signs throughout the dosing period of 28 days.

Mortality:

All animals in control and in all the treated dose groups survived throughout the dosing period of 28 days.

Body weight:

Results of body weight determination of animals from control and different dose groups exhibited comparable body weight gain throughout the dosing period of 28 days.

Food consumption:

During dosing and the post-dosing recovery period, the quantity of food consumed by animals from different dose groups was found to be comparable with that by control animals.

Organ Weight:

Group Mean Relative Organ Weights (% of body weight) are recorded in Table No.22 Comparison of organ weights of treated animals with respective control animals on day 29 was found to be comparable similarly.

Hematological investigations:

The results of hematological investigations conducted on day 29 revealed following significant changes in the values of different parameters investigated when compared with those of respective controls; however, the increase or decrease in the values obtained was within normal biological and laboratory limits or the effect was not dose dependent.

Biochemical Investigations:

Results of Biochemical investigations conducted on the day 29th and recorded in Table no 24, 25 revealed the following significant changes in the values of hepatic serum enzymes studied. When compared with those of respective control. However, the increase or decrease in the values obtained was within normal biological and laboratory limits.

INTERPRETATION:

1) All the animals from control and all the treated dose groups up to 15ml/kg survived throughout the dosing period of 28 days.

2) No signs of toxicity were observed in animals from different dose groups during the dosing period of 28 days.

3) Animals from all the treated dose groups exhibited comparable body weight gain with that of controls throughout the dosing period of 28 days.

4) Food consumption of control and treated animals was found to be comparable throughout the dosing period of 28 days

5) Haematological analysis conducted at the end of the dosing period on day 29th, revealed no abnormalities attributable to the treatment.

6) Biochemical analysis conducted at the end of the dosing period on day 29^{th}, no abnormalities attributable to the treatment.

7) Organ weight data of animals sacrificed at the end of the dosing period was found to be comparable with that of respective controls.

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FORM-I

(SCREENING AND SELECTION PROFORMA)

1.OPD/IPD No: _____ 2.Date: _____ 3.SI.No: _____ 4.Name: _____

5. Age: _____ 6. Gender: _____ 7. Phone No: _____

INCLUSION CRITERIA

- AGE: 30-60 Yrs
- Sex : Both male and female
- Patients having symptoms of joint pain of both knee joints, swelling, tenderness,
- stiffness, criptations, restricted movements of both knee joints.
- Patients who are willing to give blood samples for laboratory investigation .
- Patients who are willing to take X-ray before and after treatment.
- Patients who are willing to participate in this study with the knowledge of potential risks.

EXCLUSION CRITERIA

- Cardiac disease

  Rheumatoid arthritis

- Use of narcotic drugs
- Pregnant women and lactating mother
- History of trauma
- Patient with any other serious illness.
- Benign and malignant neoplasm
- Immuno compromised Patients
- Children, elderly

WITHDRAWAL CRITERIA:

- Intolerance to the drug and development of adverse reactions during drug trial.
- Poor patient compliance & defaulters.
- Patient turned unwilling to continue in the course of clinical trial.
- Occurrence of any serious illness.

DATE :

STATION : Signature of the Investigator

Signature of the Guide/HOD

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FORM-II

CONSENT FORM

Certificate by Investigator

I certify that I have disclosed all details about the study in the terms readily understood by the Patient.

Date: …….. Signature of the

Signature of the Investigator: …….. Guide/HOD: …….

Name: …….. Name: ……

Consent by Patient

I have been informed to my satisfaction, by the attending physician, the purpose of the clinical trial, and the nature of drug treatment and follow-up including the laboratory investigations to be performed to monitor and safeguard my body functions.

I am aware of my right to withdraw from the trial at any time during the course of the trial without having to give the reasons for doing so.

I, exercising my free power of choice, hereby give my consent to be included as a clinical trial of ***KALINGA MATHIRAI****[INTERNAL]* ***KODIVELI THYLAM*** *[EXTERNAL] AND* ***PATTRU*** *as EXTERNAL THERAPY FOR THE TREATMENT OF* ***AZHEL KEEL VAAYU[OSTEOARTHRITIS]***

Date: …….. Name: …… Signature: ……

Date: …….. Name: …… Signature of Witness: …….

அரசினர் சித்த மருத்துவக் கல்லூரி மற்றும் மருத்துவமனை

பாளையங்கோட்டை

பட்டமேற்படிப்பு சிறப்பு மருத்துவத்துறை

‘கலிங்க மாத்திரை’’ மற்றும் ‘கொடிவேலி தைலம் - ஒற்றடம்’’ இவற்றின் பரிகரிப்புத் திறனைக் கண்டறியும் மருத்துவ ஆய்வு ஒப்புதல் படிவம் ஆய்வாளரால் சான்றளிக்கப்பட்டது.

நான் இந்த ஆய்வைக் குறித்த அனைத்து விபரங்களையும் நோயாளிக்கு புரியும் வகையில் எடுத்துரைத்தேன் என உறுதியளிக்கிறேன்.

தேதி :

இடம் :

ஆய்வாளர் கையொப்பம்:

பெயர்:

துறைத்தலைவர்

கையொப்பம்:

பெயர்:

நோயாளியின் ஒப்புதல்

என்னிடம் இந்த மருத்துவ ஆய்வின் காரணத்தையும் மருந்தின் தன்மை மற்றும் மருத்துவ வழிமுறையைப் பற்றியும் தொடர்ந்து எனது உடல் இயக்கத்தை கண்காணிக்கவும், அதனைப் பாதுகாக்கவும் பயன்படும் மருத்துவ ஆய்வுக்கூட பரிசோதனைகள் பற்றியும் திருப்தி அளிக்கும் வகையில் ஆய்வு மருத்துவரால் விளக்கிக் கூறப்பட்டது.

நான் இந்த மருத்துவ ஆய்வின் போது காரணம் எதுவும் கூறாமல் எப்பொழுது வேண்டுமானாலும் இந்த ஆய்விலிருந்து என்னை விடுவித்துக் கொள்ளும் உரிமையை தெரிந்திருக்கின்றேன்.

நான் என்னுடைய சுதந்திரமாகத் தேர்வு செய்யும் உரிமையைக் கொண்டு பக்கவாயு என்னும் நோய்க்கான வல்லாதி இரசாயணம் மற்றும் சர்வாங்க வாத தைலம் - ஒற்றடம் ஆகியவற்றின் பரிகரிப்புத் திறனைக் கண்டறியும் மருத்துவ ஆய்விற்கு என்னை உட்படுத்திக்கொள்ள ஒப்புதல் அளிக்கிறேன்.

தேதி :

இடம் :

கையொப்பம்:

பெயர் :

சாட்சிக்காரர் கையொப்பம்:

பெயர்:

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FORM III

HISTORY PROFORMA ON ENROLLMENT

1. Serial No of the case: _____ 2. OPD/IPD No:_____

3.Name: _____ 4. Gender: ☐

5. Age (years): _____ DOB ☐☐ ☐☐ ☐☐☐☐
Date Month Year

6. Address: ----------

---

7. A. Occupation: ---------- B. Income ----------

8. Educational Status: A) Illiterate ☐ B)Literate ☐

9. Height: ---------- cms 10.Weight:---------- kg

11. Complaints and Duration:

12. Past History

Hypertension _____

Diabetes mellitus _____

Asthma _____

PT _____

Other _____

13. HABITS

A) Smoking : 1. Yes ☐ duration _____ years; Number - _____ 2. No ☐

B) Alcoholism:1. Yes ☐ duration _____ years; Quantity- ____ ml 2. No ☐

C) Tobacco chewing: 1. Yes ☐ duration _____ years 2.No ☐

D) Betel chewing : 1. Yes ☐ duration _____ years 2.No ☐

14. Dietary style: A.Pure vegetarian ☐ B.Non-vegetarian ☐ C. Mixed diet ☐

15. Drug history: Had the patient been treated before with allopathy drug?

A) Yes ☐ 2) No ☐

16 Marital status **:** 1.Married ☐ 2.Unmarried ☐

17. Family history :

Whether this problem runs in family? 1. Yes ☐ 2.No ☐

(If yes, mention the relationship)

18. Bowel habits & micturition:Normal ☐ Abnormal ☐

(Details of an abnormality)

19. Psychological state: Normal ☐ Anxiety ☐ Depression ☐

Signature of the Investigator **Signature of the Guide/HOD**

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FORM IV

CLINICAL ASSESSMENT ON ENROLLMENT AND ON VISITS

1. S.No: _____ 2. OPD/IPD No : _____

3. Name**:** _____ 4. Gender: _____

5. Date of assessment: _____

SIDDHA SYSTEM OF EXAMINATION

1.NILAM: [LAND WHERE PATIENT LIVED MOST]

Kurinji	Mullai	Marutham	Neithal	Palai
☐	☐	☐	☐	☐
(Hilly terrain)	(Forest range)	(Plains)	(Coastal belt)	(Arid regions)

2. KAALAM:

Kaarkalam	☐	Pinpanikalam	☐
Koothirkalam	☐	Ilavenil	☐
Munpanikalam	☐	Muthuvenil	☐

3.THEGI:

4. GUNAM:

Sathuvam - ☐ Rasatham - ☐ Thamasam - ☐

5.IMPORIGAL (SENSORY ORGANS) :

Mei (Skin) :

Vai (Buccal Cavity):

Kan(Eyes) :

Mooku(Nose):

Sevi(Ears) :

6.KANMENDRIYAM (MOTOR ORGANS) :

Kai (Upper limb):

Kaal(Lower limb):

Vai(Buccal Cavity):

Eruvai(Excretory organs):

Karuvai(Reproductive organs):

7.UYIR THATHUKKAL:

A)VATHAM:

Pranan:

Abanan:

Viyanan:

Udhanan:

Samanan:

Nagan:

Koorman:

Kirukaran:

Devathathan:

Dhananjeyan:

B)PITHAM:

Analpitham:

Ranjagam:

Sathagam:

Prasagam:

Aalosagam:

C)KABAM:

Avalambagam:

Kilaethagam:

Pothagam:

Tharpagam:

Santhigam:

8.UDAL THATHUKKAL:

Saaram[Chyme]:

Senneer[Blood]:

Oon[Muscle]:

Kozhuppu[Fat]:

Enbu[Bone]:

Moolai[Bone Marrow]:

Sukkilam/Suronitham
[Genital Discharges] :

9.ENVAGAI THERVUGAL:

Naadi:

Sparisam:

Naa:

Niram:

Mozhi:

Vizhi:

Malam:

Moothiram:

10.NEER KURI:

Niram:

Manam:

Nurai:

Edai:

Enjal:

11.NEI KURI:

GENERAL EXAMINATION:

Conscious level:

Body weight:

Height:

BMI:

Built:

Nourishment:

Temperature:

Blood Pressure:

Pulse rate:

Heart rate:

Respiratory rate:

Anaemia:

Jaundice:

Clubbing:

Cyanosis:

Pedal oedema:

Significant Lymphadenopathy:

SYSTEMIC EXAMINATIONS:

Central Nervous System:

Cardio Vascular System:

Respiratory System:

Gastro Intestinal System:

Genito Urinary System:

EXAMINATION OF JOINT:

Joint Involvement : Single/Poly

Morning Stiffness:

Pain Type;Recurrent attack/Episodic/Flitting or Migratory

INSPECTION:

Spinal deformities:Kyphosis/Scoliosis/Lordosis/None

Swelling:

Deformity:

PALPATION:

Tenderness:

Heat:

Fluid accumulation:

Crepitus:

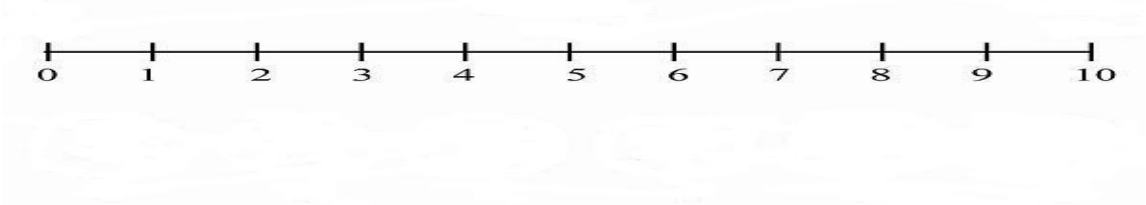
MOVEMENTS:

SPECIFIC EXAMINATION:

CLINICAL ASSESSMENT FORM

PAIN ASSESSMENT

UNIVERSAL PAIN ASSESSMENT SCALE



A -0 - No pain

B-1-3 - Mild pain

C-4-6 - Moderate pain

D-7-10 - Severe pain

Reference: Clinical manual for Nursing practice (National Institute of Health warren grant mangneson clinical centre)

GRADATION OF MOVEMENTS:

- G1 - Fit for all activities, do their work without support.
- G11 - Mild pain present in knee joint, mild restricted movement
- G111 - Moderate pain present in knee joint, moderate restricted movements, need some assistance to perform
- G1V - Severe pain, bed ridden

S.NO	SIGN & SYMPTOMS	BEFORE TREATMENT	AFTER TREATMENT
1.	PAIN		
2.	SWELLING		
3.	REDNESS		
4.	HEAT		
5.	RESTRICTED MOVEMENTS		
6.	CRIPITUS		

Signature of the Investigator **Signature of the Guide/HOD**

GOVERNMENT SIDDHA MEDICAL COLLEGE & HOSPITAL

PALAYAMKOTTAI, TIRUNELVELI DISTRICT

DEPARTMENT OF SIRAPPU MARUTHUVAM

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FORM V
LABORATORY INVESTIGATION FORM

SI.No:
OPD/IPD No:
Name:
Age/Sex:

I.BLOOD

		Before Treatment	After Treatment
1	TC (cells/mm)		
2	DC (%)		
	a)Neutrophils		
	b)Lymphocytes		
	c)Monocytes		
	d)Eosinophils		
3	ESR(mm)		
	a)1/2 hour		
	b)1 hour		
4	Haemoglobin		
5	Blood glucose		
6	Blood urea/ creatinine		
7	Serum cholesterol		

II. URINE

		Before Treatment	After Treatment
1	Albumin		
2	Sugar		
3	Epithelial cells		
4	Pus cells		
5	Red blood cells		
6	Casts/Crystals		

:

Date

Station :

Signature of the Investigator :

Signature of the Guide/HOD

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FORM VI

(DRUG COMPLIANCE FORM)

OPD/ IPD No: _____ DOA : _____

Name: _____ Age/Sex: _____ Sl.No: _____

Name of the Drug : **KALINGA MATHIRAI**

DATE:

SIGNATURE OF THE INVESTIGATOR SIGNATURE OF THE GUIDE/HOD

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FORM VII

ADVERSE DRUG REACTION FORM

Name: _____ OPD/ IPD No: _____

Age: _____ Gender: _____

Date of trial commencement: _____

Date of withdrawal from trial: _____

Description of adverse reaction: _____

_____

Date:

Station:

SIGNATURE OF THE INVESTIGATOR **SIGNATURE OF THE GUIDE/HOD**

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FORM VIII

WITHDRAWAL FORM

Name: _____ OPD/ IPD Number: _____

Age : _____ Gender : _____

Date of trial commencement: _____

Date of withdrawal from trial: _____

Reasons for withdrawal:		YES	NO
• Long absence in without reporting	:	☐	☐
• Irregular treatment	:	☐	☐
• Shift of locality	:	☐	☐
• Increase in severity of symptoms	:	☐	☐
• Development of severe adverse drug reactions	:	☐	☐

Date :

Station :

SIGNATURE OF THE INVESTIGATOR **SIGNATURE OF THE GUIDE/HOD**

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